Date: 21-7-1909

The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 1 CHICAGO, ILLINOIS JANUARY 1, 1910

Original Articles

SOME THERAPEUTIC POSSIBILITIES OF BILIARY FISTULAS *

L. L. McARTHUR, M.D.
CHICAGO.

Some observations which I have made during the convalescence of my patients from gallstone operations have appeared to me worthy of recording. While this communication is designed as a suggestive and preliminary one, enough has been done clinically to warrant its presentation on this occasion.

In practically every case of operation for gallstone the operator establishes a temporary biliary fistula, either of the gall bladder or the common duct, the purpose being to relieve the cholemia, cholecystitis, or cholangioitis by continuous drainage in much the same way as a urinary cystitis is relieved. Such treatment has proved to be the most efficient yet devised. To hasten the cure some have added to this simple drainage a daily lavage of the gall bladder with an alkaline mildly antiseptic solution. The loss of much of the fluid used for irrigation, frequently observed during such a lavage, naturally suggested the idea of studying the effects of various fluids introduced thus into the duodenum. So striking have some of these been that I desire to call attention to them, as well as to urge their further study by the members of this Section.

First, as a means of deluging the system with water, the temporary fistula many times can be utilized with surprising advantage. I have repeatedly injected in such cases, by continuous irrigation of a warm sterile normal salt solution, 500, 1,000, 3,000 c.c. of fluid, first as an experimental observation, then as a means of flushing out the kidneys, or clearing up a jaundice, or filling up the blood vessels, and in one case even added dextrose as supplying the food calories most easily assimilable.

TECHNIC

In every gall-bladder drainage, a tube is inserted and is held in place by absorbable purse-string sutures, the latter inverting the gall-bladder wall in such a way that when the tube is withdrawn peritoneal surfaces come in contact and the fistula heals. These purse-string sutures make the closure of the gall bladder around the drain practically hermetic for the first few days. To provide, however, against accidental leakage into the abdomen, some temporary protective drain, such as Bullitt, of Louisville, devised, is employed for added safety. If, now, with such a tube, through which the bile has been flowing, thus demonstrating the duct as patulous, we connect the tube of an irrigator containing, for example, normal salt solution, rate of flow being graduated not to exceed five or six drops per second, and the pressure to be not more than twenty inches elevation, continuous flow into the duodenum can be established and maintained without discomfort to the patient. Too rapid flow, or too high pressure will quickly produce pains simulating mild biliary col and might deter one from using this procedure, if r cognizant of these facts.

When large quantities of fluids have been thus introduced there has been observed a slowing of the pulse with a filling out of the vessels, a loss of thirst, a moistening of the tongue, and skin, a surprisingly rapid increase in the urinary output (patients complaining o the frequency of urination) and even edema of the fe in a patient lying on an inclined bed.

In the case of the gall bladder, the patulous charact of the cystic duct can be determined after the inserti of the drainage-tube before closure of the abdomen the use of a small glass syringe filled with sterile s solution. When I have to utilize the common duct dra age I have never tried this procedure until the sec or third day, by which time, if leakage occur, it fir itself confined to the space walled off by the prophy tic gauze drain inserted for such an emergen escapes externally.

In chronic obstructive jaundice we frequen an associated nephritis, probably incident to effects of the cholemia. In just such cases, after an ether anesthesia (which, by the w now always be discarded for the gas and oxyg is imminent danger of an urinary suppressio these conditions I have sometimes found it poss start promptly an active secretion of urine, min thus the patient's dangers.

I am likewise confident that I have been able pate a chronic jaundice far more promptly th dissipated when simple drainage alone is use over, I believe that I have noted the prompt of a persistent postoperative biliary vomitin ing the duodenum with an alkaline sal through the biliary fistula, after other metho exhausted. Theoretically, a mildly acid flu location is the normal stimulus to contract pyloric sphincter; hence I am at a loss for th tion. Sometimes the fluid has appeared in th thus washing out the stomach; sometimes i start up normal peristalsis and disappear in tines.

To speculate here on the many interestin this avenue of approach suggests would l afield, but, just as appendicostomy has do the treatment of chronic ailments of the la so biliary fistula offers suggestive possibili duodenal and small intestine therapy. W pares the difficulties and dangers which a

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ing of a duodenostomy or jejunostomy with that of a temporary gall-bladder fistula, it will readily be seen how much easier of production, freer from infective complications, and surer of prompt closure the cholecystostomy is.

I have refrained, therefore, from any but the practical points gleaned by actual experience, leaving for another time the citation of specific cases, varied medications, and statistical results. It should not be inferred that I have ignored the other means at hand, such as hypodermoclysis, intravenous injection or continuous rectal irrigation. My aim is simply to call attention to an added means of accomplishing an end, when, for one reason or another, in a case of cholecystostomy or choledochotomy those already at hand can not be employed. I am absolutely convinced that nowhere in the alimentary tract is absorption so active or so normal. Nor do I wish to be understood as using this route for the instillation of fluids when there is no indication for it, or as claiming that it can be successfully utilized in every gall-bladder or common-duct drainage. Certainly there are cases in which the common-duct opening or cystic canal is so narrow that fluids thus instilled pass so slowly through as to be of little value as a source of water-supply to the general system. Even in these, however, I believe that the catarrhal swelling of their mu- osæ can be lessened by isotonic alkaline normal salt olutions, thus hastening the restoration to that norm, ch these same tracts are being drained.

clusion, I desire to be understood not as recing a cholecystostomy as a therapeutic measure ier ailments than those for which it was origindesigned—though that may come in the future— as urging the utilization of already existing fistulas ndications similar to those referred to in this comication.

rexel Boulevard.

ABSTRACT OF DISCUSSION

F. Jonas, Omaha: I am convinced that Dr. Mc- s given us a therapeutic measure which will be aching in its effect. If we stop to consider that stitis or gall-stone disease, we have to deal with n, we will find that the gall-stones are only a of the disease. After their removal by operation in ority of the cases, perhaps 95 per cent., a cure is by drainage to the surface. A certain percentage of nts are not relieved in this way, in a small percentover five, the pain persists for a considerable period stones have been removed, and after the external al has healed. It is in such cases that the drain- d by Dr. McArthur would seem most effective. in mind that in gall-stone disease we have to n infection which is transported to the gall pasty of the common duct, lymph channels or the we observe that the first change is a slowing of secretions, due to a catarrhal condition. As soon retarded flow of bile, gall-stone formation is pos- an operation has been performed and drainage stituted, we desire to eliminate the infection and he normal flow of bile and its normal fluidity. I convinced that after careful drainage we some- give complete relief; in such cases we must in- means by which bile may be caused to flow with ity. When the bile is not restored to its normal ms that by Dr. McArthur's method of irrigation ssages with normal salt solution we have the nplish this and to relieve patients in whom led. Therefore, I wish to commend the method am sure that with an increasing experience der field for its application.

Dr. W. L. Rodman, Philadelphia: I am convinced that a therapeutic measure with great possibilities has been given us by Dr. McArthur. As Dr. Jonas said, it is necessary in many cases of gall-bladder disease not only to make temporary drainage, but to keep up the drainage for some time afterward. In this way it seems to me that not only diseases of the gall-bladder itself, but chronic pancreatitis would be very much benefited by this treatment. Furthermore, we all appreciate Dr. McArthur's reference to appendicostomy, and that there are enormous possibilities in this direction. I have employed the operation in the past year in cases in which drainage of the large intestine was necessary, in chronic dysentery and in diarrhea. I have had the best results from free lavage through the appendix, and it seems to me that in similar conditions in the upper abdomen it might be equally useful.

Dr. J. W. Draper Maury, New York: Dr. McArthur's results correspond very closely with mine as I have observed them in animals. I have not yet hit on so ingenious a method of draining the duodenum, but I have done a duodenostomy and have been able to save the animal, which otherwise would have died, by washing out the duodenum by continuous irrigation. It is interesting to see how closely the experimental and clinical sides of this work have come together.

THE MANAGEMENT OF THE APPENDIX STUMP *

VAN BUREN KNOTT, M.D.
SIOUX CITY, IOWA

During the past few years much time and some ingenuity have been expended in devising means for treating the stump of the appendix, and many articles have been published advocating methods which differ widely in degree, utility and ease of application. Many of these methods are so complicated and unwieldy as to merit no serious consideration, and more than one of them has been encumbered with some especially designed instrument to facilitate its performance.

The most extreme simplicity which is compatible with thoroughness has long been recognized as most desirable in operative technic, and it is the purpose of this paper to plead for the more general employment of simpler methods in the treatment of the stump of the appendix.

Two years ago Dr. John A. Wyeth, in a masterly address, presented this question before this Section. I can bring to bear on this subject neither the eloquence nor the weight of authority possessed by my distinguished friend, Dr. Wyeth, but, as in my attendance at various clinics in all parts of the country I notice the somewhat general use of procedures more or less complex, and in some instances unsafe, it would appear that the principles involved are sufficiently vital to permit further discussion. The method here advocated is, in brief, as follows:

The mesoappendix is ligated with No. 1 plain catgut. An incision is made between the ligatures and appendix until the latter has been freed to its base. Around the base of the appendix, practically flush with the cecum, a ligature of No. 2 silk is placed and tightly tied; an artery forceps is then clamped on the appendix half an inch distal to the silk ligature. After the tissues in the immediate vicinity have been protected with a gauze sponge or pack, the appendix is divided half way between ligature and forceps, the stump is thoroughly cauterized, inside and out, with pure carbolic acid and after being thoroughly dried, the cecum is permitted to

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

drop back within the abdomen, no effort of any sort being made to cover the stump.

I have employed ligation of the stump with silk in every instance in which it was possible, in all operations, and have seen no postoperative hemorrhage or other complication which could be charged to the stump treatment in over 2,000 appendicectomies.

It was my practice, until three and one-half years ago, to cover the stump, whenever feasible, by carrying over it from either side a fold of cecum, which folds were retained in position by Lembert sutures. This refinement was finally discarded as unnecessary after the repeated observation that in those instances in which, owing to the extreme infiltration of the stump or the cecal wall, such infolding was impossible, convalescence was as smooth and rapid as when this precaution was observed. About 800 patients have been thus treated with no complication of any sort which could be charged to the stump.

Many cases of postoperative hemorrhage have been reported in which, at operation, the stump had not been ligated with silk or linen, but had been treated by some of the more elaborate procedures, crushing, invagination, etc.

My information as to the occurrence of this accident after such ligation agrees with that of Wyeth, who states that he has been unable to find the record of a single case.

That efforts to bury the stump of the appendix by invagination, infolding, or by stitching over it the stump of the mesentery, prolong the operation and increase the general amount of manipulation necessary must be admitted. That such refinement of the technic is unnecessary has been proved by abundant evidence.

Frequently the attempt to place the sutures to accomplish this burying of the stump will be accompanied by hemorrhage due to the puncture of blood vessels by the needle and at times such hemorrhage may be somewhat difficult to control, much time being lost thereby.

It is a well-known fact that the vitality of living tissues is seriously impaired by prolonged manipulation, and the tendency to wound infection thereby increased. This fact of itself should cause us to "get in and get out" in every operation with as little trauma as possible.

We have all seen efforts made at covering the stump, possibly in unsuitable cases, in which the sutures were placed several times before they would hold, and which when finally secure were only made so at the expense of many tissue cells and much loss of time.

The argument is at times advanced that much danger of postoperative adhesions is engendered by dropping the uncovered stump. I believe this to be a bugaboo with no foundation in fact, particularly if such stump has been thoroughly cauterized with carbolic acid. I have many times had the opportunity to inspect the cecum when reopening the abdomen for other conditions, months or years after an appendicectomy made under the technic described above, and, in most instances, it was only with difficulty, if at all, that the former site of the appendix could be identified on the cecal wall.

That the danger of leakage is increased by failure to cover the stump is another bugaboo which, it seems, should be effectually routed by the experience of Lilienthal, who has in several instances tied off and dropped in similar manner the small intestine with no untoward result.

Believing that our duty to our patients and to surgical art demands that we should prolong neither anesthesia nor manipulation in any instance one moment beyond the actual requirements of the individual case, it is urged that time-destroying and tissue-bruising methods in the treatment of the appendix stump be abandoned for the more rational and safer procedure of ligation and dropping.

500 Security Building.

A CONSIDERATION OF THE FACTORS IN THE MORTALITY OF APPENDICITIS

BASED ON A CONSECUTIVE SERIES OF FIVE HUNDRED AND FORTY-FIVE OPERATIONS, WITH TWO DEATHS *

LE GRAND GUERRY, M.D.
COLUMBIA, S. C.

During the last four years I have had occasion to operate on a consecutive series of 545 appendix patients. Out of this number two were lost, making a mortality of about 0.3 per cent. The mortality rate is, I hope, sufficient justification for presenting the paper.

Appendicitis is by far the most important acute abdominal lesion that surgeons are called on to treat. It is about eighteen years since Fitz, of Boston, gave to the medical profession his classical treatise on appendicitis; it would not be far wide of the mark to say that the birth of the recognition of this disease was in Fitz's paper. He taught us pathology, he taught us what the disease really was, and its scientific and rational treatment followed not only logically but of necessity.

That 545 consecutive operations can be done by an ordinary man under ordinary conditions, with but two deaths, and these two occurring in the first 100 cases, leaving 445 cases without death, proves to my mind, at least, that there is a factor in the mortality that is not fully appreciated, or, if appreciated, is not practiced as it should be.

The 545 cases were divided as follows: Of chronic cases requiring so-called interval operation there were 240, with no death; of course, no one expects mortality in the ordinary cases of chronic appendicitis. Unless some unforeseen calamity occurs, the patients all recover, for the cases are practically aseptic.

Of acute cases there were 92 in which operation was performed within thirty-six hours. If I follow any rule in regard to this work, it is that I always operate as soon as the diagnosis is made, provided such diagnosis can be made within thirty-six hours. The reason for this is obvious: were it possible to operate in all cases within twenty-four hours, in nearly every instance one would operate before the infectious process had gone beyond the appendix; in other words, one would be able to do clean work in an uncontaminated field. The cases are few in which the infection spreads beyond the appendix within twenty-four hours. In cases seen on the third, fourth or fifth day, the clinical, as well as the pathologic, conditions are different.

I quote the following from Maurice Richardson:

> After the first forty-eight hours the conditions found at the operation differ materially from those of earlier hours; necrosis has been fully established, localization has become successful or infection has become general; the appendix will be found imbedded in recent adhesions. Contiguous to it, surrounding it, or in some way connected with it, will be found

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

> a foul-smelling exudate teeming with bacteria; this exudate will vary *in its location* between wide limits of the peritoneum; it may be far to the right behind the cecum; it may be high up, involving the liver and kidney; it may fill the pelvis or cover the bladder; it may be buried among the small intestines; it may be directly under the skin; it may appear in the left lower quadrant of the abdomen.

I certainly question, and believe it perfectly fair to do so, a method that prescribes an invariable rule of procedure when cases are seen at this most critical stage of the disease.

The third-day and fourth-day acute cases are the ones that give mortality. This question often arises: Why are there so many cases of localized appendix abscess? The answer, in my opinion, is that there is a definite and unmistakable tendency toward localization in cases of appendicitis complicated by the presence of pus. In this series of 545 there were 213 of this variety—a very large proportion.

Of these 213 cases, 68 were seen for the first time on the third or fourth day of the disease. The pulse in most cases was 135, temperature 104; vomiting, distention, pinched features and more or less delirium were also present. Such cases as these are the ones in which operation is attended with mortality. None of these patients were operated on immediately; all were treated according to the Ochsner method: they were tided through the period of great danger and several days later were safely operated on for localized appendiceal abscess. I believe that this method has been greatly misunderstood by many people, but I also believe that, properly applied, this contribution of his is a life-saving measure and entitled to the highest consideration. It was never intended that it would take the place of operation, but that it should permit the selection of a safe time for operation. It does convert an operation attended with great mortality into an operation of safety and conservatism.

The mistake made by the man of ordinary ability lies in the fact that he thinks, for example, that because a surgeon of national reputation can operate in all cases as soon as he sees the patients, without regard to time or place, he himself can follow the same method successfully. This belief is, I believe, entirely wrong and fraught with great danger. The real point is to determine what methods the individual himself can use most successfully. In this dangerous class of cases the time for operation is the all-important consideration. Richardson says that some patients "should be operated on immediately, some require a more favorable opportunity, and some permit leisurely selection of a convenient time."

I submit, in support of this position, the above sixty-eight cases seen on the third or fourth day, the patients all treated as above indicated, all coming to operation with ruptured and gangrenous appendices containing pus and all recovering. Some will ask why not do, as Murphy advises, perform rapid removal of the appendix, drainage and enteroclysis. I submit that no method could produce better results in these cases.

Stanton[1] says:

> There can be no doubt of the advisability of operative interference previous to the time of the development of peritoneal infection, nor is there any doubt of the satisfactory results and low mortality of operative work in the stage of localized abscess formations. The high mortality of operative interference between these periods is known to all, and the clinical results of Ochsner and many others now overwhelmingly demonstrate that with *proper methods of treatment the vast majority of cases* seen first during the stages of diffuse lesion can be carried over for operation at a later, more favorable period. The almost absolute *uniformity in the progress* of those processes leading up to the localization or resolution of the peritoneal inflammation, as it was observed in this study, has served to convince the writer that the claims of those advocating conservative treatment during certain stages of acute appendicitis, are founded on a much more definite pathologic basis than is generally recognized by the profession at large.

The whole question naturally hinges on the cases seen for the first time on the third or fourth day—cases with acute spreading infection. It must surely have been *genuine insight* on the part of Ochsner, who laid bare the principle that the chief factor in the dissemination of the peritoneal infection was the vermicular movement of the small intestine. Since in appendicitis there is a *constant regurgitation of the contents of the small intestine* into the stomach, due to the closure of the inflamed ileocecal valve, the practice of gastric lavage, which empties not only the stomach, but the small intestine, has its foundation in a rational conception of the diseased process. The basic principle is that we thereby secure a condition, approximately at least, of physiologic rest to the inflamed area, which gives Nature the chance she has been seeking to complete the localization of the infection. I wish to emphasize particularly the point that none of these patients were operated on immediately; they were all treated as outlined above. All were safely operated on at a later date; and in each case a gangrenous or ruptured appendix, with pus, was demonstrated at operation. No patient died as a result of the treatment.

I do not wish to be understood as advocating an extreme measure; it has always seemed to me that when one operates on all patients as soon as they are seen, regardless of time or place, one leaves no room for the exercise of the operator's surgical discrimination and judgment. The natural forces working on the patient's behalf, to wit, his opsonins, his leucocytes, his resistance and ability to overcome the infection and develop immunity are absolutely lost sight of; that these natural forces are of the greatest possible help is proved, to my mind at least, by the fact that in so many cases the disease is localized when the patient is first seen.

The question of how to operate and of skill in operating is of greatest importance, and I would not for one moment convey the impression that nothing else was to be considered. The gynecologists learned years ago that it was fatal to operate in cases of pyosalpinx in the acute stage; they learned to wait until immunity was developed; then the mortality became almost *nil*. Whether the case is acute or chronic, clean or suppurating, operation is done through the McBurney incision; drainage, when necessary, is through a stab wound to one side; it is very rare, indeed, when this incision is abandoned. The rule is to remove the appendix; to this rule, however, there are exceptions. I believe it better to enter the free peritoneal cavity by Ware's modification of the McBurney incision, pack off the infected area and remove the diseased tissues.

Of the two who died, one patient with renal tuberculosis developed acute appendicitis, died on the eighth day with postoperative anuria; the second was a little girl, 7 years of age, who had been sick for ten days, and died from a continuation of the peritonitis.

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[1] Stanton, E. M.: Sequence of the Pathologic Changes in Appendiceal Peritonitis, Surg., Gynec. and Obst., April, 1908, vi. 397.

DEATH IN ACUTE INTESTINAL OBSTRUCTION AND KINDRED CONDITIONS IS DUE TO PHYSIOLOGIC DISTURBANCE

STUDY I. HAS THE DUODENUM A TOXIC INTERNAL SECRETION?[*]

J. W. DRAPER MAURY, M.D.
NEW YORK

Physiologists often quote the sentiments of Montaigne: "'With how little anxiety do we lose the consciousness of light and of ourselves.' By this they would convey the idea that the act of dying is as painless as the act of falling asleep, and also as little perceived." Nevertheless, so strongly rooted in the human mind is the desire to live that the great profession of medicine has for its chief purpose the lengthening of human life. Hence it is natural that the study of the causes which bring death to a cell, to an individual, or to a race of men, has for long been a favorite and engrossing one. "The supreme fact," says Adami, "that sooner or later death comes to all men, has profoundly affected all human thought, and the various religions of the world may be regarded as the evidence of man's determination to rise superior to the dissolution of his body." In the unicellular organism there is no destruction of the essential living matter, but a multiplication of the same, each spore carrying on the life. In the ordinary interpretation of the word, there is no natural death. "It is with the appearance of the multicellular organisms that natural death enters into the world." In the cellular differentiation it comes about that the germ cells are given the inherent power of life, while the somatic cells through the elaboration of which the individual organism reaches its final development—side-tracked groups, as it were—the sentient genetic agminations, which we recognize as individuals, are destined to hold and live together for a span and then to undergo dissolution. There are in general two forms of death which may befall the somatic cell, the physiologic and the pathologic. The latter form of death may be induced by mechanical, physical, chemical, or bacterial agents. With these in the present paper, which deals with the cause of death in the duodenojejunal obstruction alone, and more remotely with the little understood lethal outcome of gastric, pancreatic and hepatic lesions, I hope to demonstrate that we are not concerned. For if the observations extending, as they do, over a period of four years and embracing more than 400 observations, are in their essentials correct, it may require no great foresight so to interpret them as to lead clearly to the conclusion that the physiologic mechanism of the duodenum and its associated glands is not merely at present but vaguely known, but that it presents to the student of these parts, and through him to the operating surgeon or the internist, a picture of physiologic exchange of secretions, some of them perhaps internal in character, in comparison to which functions of the parathyroid and other better known glands seem simple.

We are entering on the physiologic era in medicine and in surgery, as well, and, as already intimated at the beginning of this paper, no subject offers a more engrossing field for thought than that which deals with the cause of death under certain pathologic conditions. I take it that this interest has a double source: first, because of the mystic element which from time immemorial has shrouded the final dissolution of the body in an impenetrable veil, and, second, because for students of disease a knowledge of the cause of death in a given lesion is necessarily the first step toward a knowledge of the factors which may be invoked to prevent that death. The pathologic forms of death, particularly those induced by bacterial agents, are now reasonably clear, but physiologic death—that form of dissolution of somatic entity which follows parathyroidectomy and that associated with adrenal and pituitary destruction or removal—this physiologic form of death is the study with which we have to deal. It immediately and profoundly concerns the future progress of the treatment of diseases of the stomach, the pancreas, the liver, and the duodenum.

There are certain very interesting phenomena which are common to these lesions. Some have been recognized from studies on human beings and on animals. Others, which will be dealt with in the course of this paper, have been the outcome of the studies herewith presented, and it is my effort to correlate the known facts with the new facts referred to. For I understand physiologic death to comprise not alone the dissolution which follows the removal of certain substances from the body by destruction of their secreting cells, as seen in parathyroid and suprarenal removal, but also that dissolution of somatic life which is brought about by the mechanical interference with detoxication of the normal secretions of the body. Such, at least, seems, after careful thought, to be the probable condition which obtains in the duodenum when the normal current of the intestine is blocked. The first thing which naturally suggests itself is that there has been a failure of normal exchange between the known secretions of the duodenal mucosa, the pancreas and the liver, which exchange is accompanied by a detoxication or absorption of certain of the known poisonous products of the digestive ferments. William Welch, however, in commenting on preliminary reports of this work, has said that, if corroborated, the experiments herewith detailed suggested very strongly an actual internal secretion from the duodenum. I lay no claim to having as yet proved this, but am encouraged in the belief that further experimental work along the lines employed, and perhaps by others more qualified than myself, will ultimately prove which of these two views is the correct one. I regard it as conclusively demonstrated, as well by the work of others as by my own, that the death following duodenojejunal obstruction, and probably the death which characterizes acute pancreatic disturbances other than infections and traumatisms, that associated with the symptom known as gastric dilatation or gastric tetany, and that associated with certain operations on bacterially clean surgical fields in which the hepatic ducts have been invaded—that all these now uncorrelated and little understood deaths are due to a common underlying cause as yet not understood.

It will thus be seen that the studies here presented represent but a small and weak link in the chain, which it must take years to forge before the conclusions which I have ventured to suggest are made scientifically acceptable. For their importance in the development of this idea rather than for individual intrinsic merit they are herewith submitted.

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[*] Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[*] From the Surgical Research Laboratory, Columbia University, New York. This article is the first of a proposed series of studies which seek to correlate duodenal, pancreatic, hepatic, and perhaps gastric autointoxications. The work was done under a grant from the Rockefeller Institute.

Of these associated problems, if for purposes of argument in an investigation one grant that there be an association, it has been my fortune to study the one which perhaps presents greater difficulties because of its anatomic position, namely, the duodenum and jejunum. In whatever manner this may be rightly considered, I ask to be allowed to start with the hypothesis that the intestinal barrier which closes the lumen works no ill to the organism save through an interference with the physiologic exchange or balance of the duodenojejunal secretions, and that the resulting death is physiologic in type. Whether these secretions, as already intimated, are endoenteric or exoenteric is not yet known. The extraordinary sensitiveness to operative procedures, however, of the parts, together with the experimental deductions, suggest rather strongly that there are other factors at work in addition to those which may be attributed to the zymotic action of the known secretions, and this, of course, points to an exoenteric or internal secretion of the duodenum.

I ask that it be assumed for the moment—and of this we have adequate proof—that in intestinal obstruction there is no appreciable damage to the individual through the nervous system from the direct trauma of the obstruction; that there is no lethal infection of bacterial origin; that the element of decomposition of food does not enter into the picture at all; in short, that all pathologic forms of death are eliminated, and I will strive to detail the simple and, may be, inefficient measures which I have taken, not alone to prove these things, but to throw light on the intricate questions which are the real subject of these studies.

NERVOUS EFFECT OF INTESTINAL SECTION

Clinically, surgeons have recognized a difference of degree in the shock produced by cutting the intestines in various places. The nearer one approached the pylorus, other factors being equal, the greater the shock. The actual longitudinal section of the pylorus, which is the essence of the well-known Finney pyloroplasty, has always been accompanied by immediate clinical reaction and has formed the basis for one of the arguments against this operation. Nevertheless, experience has shown this shock to be transitory and to present no real danger. This observation in itself is significant of the error of the view that any of the symptoms of intestinal obstruction are rightly to be attributed to the nervous manifestations due to the constriction. It is not to be denied that such nervous phenomena make themselves felt at the pylorus, where a protecting interference with its normal mechanism is always manifest as the result of any injury to the aboral portion of the intestinal canal. Furthermore, operations which will be described later, and in the course of which the highly sensitive pyloric region was entirely removed or seriously injured, and as a result of which the animals recovered without any sign whatsoever of obstructive intestinal autointoxication; and, still further, operations in the remotely aboral portions of the small intestines—and which technically were associated with the same amount of traumatism as those just referred to, and following which there was a similar return to health—these considerations, together with those already referred to, show conclusively that the nervous shock or reaction—let it be called what it may—has nothing whatsoever to do with the cause of death in intestinal obstruction.

It stands to reason that if a dog would live for weeks with ileac obstruction, and would die at the end of a few hours with duodenal obstruction, while the same dog could be made to live also for weeks with but the slightest gastric drainage, the immediate effect of traumatism may be discounted. Incidentally it may further be noted that whatever nervous traumatism might be associated with the dilatation of the proximal loop would presumably be greater where there occurred the greater dilatation. In the majority of fatal cases of duodenal obstruction there was little or no such dilatation.

INFECTION OF BACTERIAL ORIGIN

For purposes of further study it should be borne in mind that all the deaths arising from intestinal obstruction, except probably cases in which such obstruction occurs in the vicinity of the duodenum, pathologic deaths may be and probably frequently are caused by the entrance of pathogenic germs through the dilated proximal loop, to the vascular system. This has been thoroughly worked out by Roger, of Paris, and MacCallum in Baltimore. These observers, as well as others, have found bacteria in great numbers circulating in the blood when the obstruction has been located in the aboral portion of the ileum or the great duct. No such germs however, have been found in the blood as the result of duodenojejunal obstruction. One is not going far afield, probably, in believing that there exists a line somewhere about the termination of the jejunum where intestinal obstruction causes death from bacterial invasions if it occur aboral to this line, and death from interference of duodenal functions, if oral to this line. Indeed, it seems quite natural that there should be no bacteria from the blood in the one class of cases, first because the pathogenic flora of the duodenum is absent or exceedingly spare, and, second, because death usually takes place before there is much, if any, impairment of the wall of the duct oral to the obstruction such as is commonly seen in those obstructions occurring in the ileum of the great intestine and through which bacteria may escape.

DECOMPOSITION OF FOOD

In almost every text-book article on the subject one finds that the element of food decomposition has in the past been credited with an important rôle in causing death in intestinal obstruction. It is noteworthy, however, that if a series of dogs be allowed to fast for three days and then be given copious doses of castor-oil, and immediately thereafter be operated on so as to produce duodenojejunal obstruction, death will take place in the same average time and under conditions similar to those observed in a series the individuals of which had been copiously fed just prior to operation.

With these premises and in part for academic purposes of argument, it becomes necessary to assume that we shall differentiate in intestinal obstruction two entirely separate and distinct forms of death; the one duodenojejunal and purely physiologic, due to an unknown disturbance of the endoenteric or exoenteric secretion of the duodenum and its glands; the other ileac and purely pathologic; the one a true autointoxication, the other a true exointoxication. Although the series of 400 cases of duodenojejunal obstruction experimentally created in dogs is not a small one, the positive conclusions which are offered by it are regrettably small. Aside from recognized personal deficiencies, this may fairly be attributed to the fact that the experimental studies have now reached a point at which the services of chemists and biologists, rather than those of surgeons alone, are required.

TECHNIC

As in many other cases, the method of studying duodenojejunal obstruction was discovered accidentally while in the pursuit of other matters. These preliminary studies consisted in efforts to create a delayed gastroenterostomy somewhat after the manner of the well-known McGraw elastic ligature, except that common twine was to be used in the newer technic. Surgeons at the time were interested in the technical consideration whether or not it was necessary to remove a portion of the gastric mucosa at the time of the making of the stoma. The McGraw ligature simply cut a slit and Dr. Weir desired this modified so that an actual fragment should be removed. In an effort to study the degree of shrinkage of the stoma, it became necessary to close the pylorus or duodenum in one series, while this region was left unobstructed in the other series. It was then that the interesting phenomenon was observed, namely, that closure of the oral portion of the intestine almost always resulted in death before the cutting through of the delayed gastroenterostomy. It was a perplexing coincidence that every animal died, to a dog. There was no immediate reaction from the operation other than normal, and during the first thirty-six hours the animals seemed to be in perfect postoperative condition. Suddenly, however, and with a singular uniformity, it was noted that between the thirty-sixth and the seventy-second hour they were seized with symptoms which peculiarly resembled those of parathyreopriva. The heartbeat was accelerated, often rising to 250 per minute. The face was anxious, with an expression not so much of pain as of distress. The gait, while the animal was able to walk, was peculiar owing to a spasticity of the hind legs. This spasticity involved chiefly the flexor groups of muscles and was sometimes so marked that the animals walked directly on their hind toes. There were well-defined muscular tremors; these were fine and seemed to be particularly prevalent in the intercostals The spasticity would last for perhaps ten hours and be succeeded by a paresis, as the result of which the animal ceased to walk. The entire picture frequently lasted less than eighteen hours, for the course from postoperative seeming health to death was usually extremely short.

At autopsy an early *rigor mortis* was noted. There was neither peritonitis nor any gross lesion discoverable within the abdomen. The oral loop usually was not dilated, and the efforts made to preserve the normal blood supply of the intestine had uniformly been successful. For the purposes of study it was fortunate that the period necessary for this physiologic death to overtake the animal was about the same in length as that which was required by the string to cut the delayed gastroenterostomy. It was fortunate because it at once afforded a means of controlling the observations. Granted that the time of cutting out, in the normal dog's intestine, of the stoma, would be about constant, one had simply to make the other factor, which was the position of the obstruction, a variable one, and judge results in terms of the control. This chronicled the results, as it were, in terms of gastric drainage; for it must be remembered that the slightest drainage of the oral loop will counteract the lethal effects of what we believe to be a physiologic death, due to a disturbance of physiologic intraenteric enzymotic balance.

DETERMINATION OF ABORAL LETHAL LINE FOR PHYSIOLOGIC DEATH

Logically the first step, after determining by a long series that death will follow the closure of the duodenum at any level before drainage might be established through the potential stoma, was to ascertain the effect of placing the obstruction in the jejunum. Another lengthy series determined, we believe with accuracy, that death would not occur in a medium-sized dog during stoma control, namely, seventy-two hours after the operation, in any case in which the obstruction lay more than 35 cm. aboral to the pylorus. The individuals exposed to this type of experiment will in future be referred to as the "long-looped dogs;" for to them, on account of possible production of antienzymes, or protective bodies of unknown character, there attaches a peculiar and perhaps a lasting interest. These long-looped dogs, barring ordinary accidents, survive the moderate toxemia to which the obstruction gives rise clinically, and will live often for several months without apparent discomfort or loss of body function. On autopsy the oral segment may be found but moderately dilated, and the evenness of digestive function, as evidenced by maintenance of body weight, suggests the phenomenon of gastro-proteid digestion.

The conclusion, then, from this series of cases, was that the addition of a relatively short portion of the jejunum to the oral loop in some unknown manner served to prevent the dogs from dying before the stoma cut through. Thus it would seem either that the jejunal mucosa had the property of absorbing the poisonous products from the duodenal region, and in some way rendering them harmless, or else it secreted an enzyme which acted as an antibody for the poisonous products referred to.

DETERMINATION OF ORAL LETHAL LINE FOR PHYSIOLOGIC DEATH

The next step naturally was to determine the oral limits at the point of obstruction beyond which one might go without encountering physiologic death within the time limit of stoma control. Because of the studies of Roger on gastro-toxic serum, it is of great importance to know whether death in intestinal obstruction be due to the absorption of gastric toxin, or whether death takes place, as I believe may be the case, from a disturbance of the duodenal internal secretion. It should be repeated that this is as yet an hypothesis, but I believe it to be a working hypothesis. Roger states that simple ligature of the pylorus leads to this physiologic death in from seventy-two hours to five days. That, it will be observed, is just outside the limit of the twine control which we have used in our studies. So much, however, that is accidental, is certain to enter into all this sort of work that one feels a hesitancy either in commenting on the results obtained by others or in pressing one's own experimental findings. It is certain, however, that I have observed this fact, namely, given free drainage of the duodenum through the normal channel, the stomach may be obstructed at or near the pylorus more frequently without lethal results, until the cutting through of the stoma, than if the obstruction were in the duct-bearing portion of the duodenum. Of course, in this type of experiment, with the drainage of the duodenal digestive products proceeding through a normal channel, there ceases at once to be a reason why the animal should not live for an indefinite period. It should not be understood that no physiologic toxic elements arise from the stomach, and that the source of the toxicity is strictly duodenal or pancreatic, but I have been struck by the fact that, discounting all consideration of biliary toxemia which one seems justified in doing, the source of the poison lies either in the duodenum, the stomach, or the pancreas. In the light of our present knowledge and measuring the degree of toxicity by a time-drainage unit, rather than attempting to measure it as Roger has done in terms of toxic units, I was led to assume that the main source of the toxemia was not in the stomach, but in the duodenum. This enabled me, for purposes of study, at any rate, to place the oral limit of the lethal line between the pylorus and the papilla of Vater, because until now the question of the influence of the bile had not yet been worked out. The mere fact that a proportion of animals would die when the obstruction was situated at the pylorus should not be looked on as necessarily proving that the source of death was to be found in the stomach, because it is quite conceivable that an interference of enteric circulation at the pylorus might serve to upset intraduodenal balance simply by deprivation of gastric secretions.

The duct-bearing portion of the duodenum has long been recognized as an area having unknown and profoundly complex physiologic properties, and it is in part the object of this paper to demonstrate that a more accurate interpretation and knowledge of the physiologic processes going on in this short tube must form the groundwork for future therapeutic progress, be it surgical or medical. The morphologic relationship of the stomach, liver and pancreas to the duodenum has been graphically portrayed by Mumford, who says that the pancreas, liver and ducts and the stomach hang like three apples on a single stem—the duodenum; whatever affects one very frequently affects the others. What more striking simile could one have? I submit that these studies have carried us still further and that we are now justified in considering not alone the morphologic relations, but also the physiologic relations, as fixed. Is it not most significant, in view of the close morphologic relationship of these organs, that we have from unknown causes fatal hemorrhages into the pancreas; fatal dilatations of the stomach; fatal sequels to biliary operations which are not adequately drained; fatal terminations to duodenal obstruction—all occurring without the possibility of bacterial toxemia?

ELIMINATION OF THE BILE BY DUCT LIGATION: CHOLECYSTENTEROSTOMY AND TRANSPLANTATION OF POINT OF DISCHARGE INTO DUODENUM

A long series fraught with great technical difficulty was created, in which the bile was intended to drain into the ileum by use of the ordinary suture opening between the gall bladder and the intestine. For some reason, however, although the technical part was accurately executed, there was in every case a failure of the bile to drain. I finally concluded that either there was a change in its composition, owing to infection from the ileum (and for this there seemed reasonable basis for belief, because the contents of the gall bladder appeared milky on autopsy), or else that the secretory function of the liver cells had been abandoned, or had changed to an absorptive one. Such a change is not infrequently met when conditions of exit to a secreting gland are changed. In any event, whether the bile drained or not, it was impossible for it to enter the oral intestinal loop, as the common bile duct had been ligated and divided. The results, so far as the physiologic death of the animal was concerned, were just the same as if the bile had been present in the intestine. Death occurred in short-looped dogs (less than 35 cm.) before stoma-control drainage. Nevertheless, conditions for this study were not ideal because there was either a suppression of biliary secretion or else its absorption into the blood. In order to enable me to feel that I was not superimposing hepatic changes on those already under consideration, a colleague of mine devised an ingenious means for the direct transplantation of the bile to the aboral loop, by a device hereafter to be described, which will form the basis of a communication from him at a later date. It comprised the reconstruction of the common bile duct. The use of this simple and effective technic allowed of sufficient room between the transplanted biliary intake and the greater duct of the pancreas, either for complete section and invagination of the duodenum, or its ligation, as the case might be. Here again a series of sufficient size demonstrated that the supposed toxicity of the bile, at least in regard to death from obstruction, was erroneous. Parenthetically bile has probably been a much-abused secretion and it is time that any undeserving onus was removed. Hippocrates credited black bile with being the offending agent in digestive disorders. More recent observers, however, namely, Kocher and Moynihan, agree that the flow of bile into the stomach is in no way deleterious to the health of the patient. Since my own observations on the intraenteric and intragastric presence of bile are corroborated as to its harmlessness, is it not interesting that it should be universally regarded as essential to drain in all operative cases in which the gall bladder or ducts have been tampered with? Perhaps one may be excused for offering the suggestion that such drainage, in an as yet unknown way, reacts on the duodenal secretions. It did not matter, then, whether the bile entered into the oral or the aboral loop, whether the common bile duct was simply ligated or cut, or whether cholecyst-ileostomy were done; the lethal outcome appeared very conclusively still to be dependent entirely on the position of the obstruction. In other words, bile, the salts of which are known to possess a very considerable degree of toxicity, was in no way connected with the physiologic death under observation.

RELATION OF THE PANCREATIC SECRETION TO INTESTINAL OBSTRUCTIVE PHYSIOLOGIC DEATH

It had already been shown that death took place in short-looped dogs whether bile was present or absent in the oral segment. The morphology of the parts did not allow a transposition of the pancreatic secretion, in the first place because there were two ducts, and in the second place beause they were always short and firmly fixed to the pancreatic tissue. Any interference with this, no matter how delicate, might, as all know, lead to fat necrosis and other conditions which would confuse the point at issue. By transposing the bile, however, I was able to move its point of entry as many centimeters aboral to the papilla of Vater as was convenient. After ligating the lesser duct of the pancreas at its point of entrance beside the papilla and cutting it, one could make certain of having sufficient room to sever and invaginate the duodenum in such manner that all the pancreatic secretion might empty into either the oral or the aboral intestinal loop. Opie, in a recent communication, has commented on the fact that drainage of the greater duct would usually suffice to prevent any undue hardening of the gland because of retained secretion, and I have been glad to corroborate and make use of his observations.

The result of these studies was conclusive in one regard, namely, that quite irrespective of the whereabouts of the discharged bile a large proportion of the dogs lived during stoma control when the pancreatic secretion drained aborally, and they died during stoma control when it was confined in the oral loop. While I seemed here to arrive in a measure at the crux of the situation, too definite conclusions in interpreting these studies should not be drawn. The excessive sensitiveness of the duct-bearing portion of the duodenum makes it imperative that more than ordinary care should be taken in furthering these studies, and corroborative evidence should also be asked from other observers. That the secretions of the gastric mucosa may be toxic, and that this toxicity may be increased many thousand times by an oral intestinal obstruction, must not be lost sight of. That under certain conditions of deficient drainage the secretions which emanate postoperatively from the hepatic regions are also extremely toxic must further not be forgotten.

But I have accomplished enough to warrant the conservative suggestion that whatever may be the nature and degree of this toxemia, whether in reality it is of a common origin in the duodenum or from separate origin in the glands or stomach, that one which develops from a disturbance in the duct-bearing portion of the duodenum contains poisons of an exceedingly grave nature. It is presumably not to be denied that the increase in the amount of gastro-toxins noticed after pyloric obstruction may, as already intimated, well be brought about by the interference of a normal duodenal limitation of such toxic development. It is a point of perhaps more than academic interest that Weinland has found that an antitryptic ferment existed in the oral portion of the small intestine. Is one justified in supposing that as the pancreatic juice, grossly at least, appears to be the lethal agent, the danger from obstruction grows less and less the further one places it from the pylorus, and, therefore, more and more in the antitryptic-bearing portions of the canal? Let it not be understood that this is intended to state, or even suggest, that trypsin alone, or as such, is responsible for the physiologic death described. No doubt there are many other ferments and antiferments occurring in the duct-bearing portion of the duodenum, and created either by its mucosa or by the cells of the pancreas or liver, but mention is made of the trypsin simply because it is representative of a class, the antibodies to which have been definitely found. It is in interpretation of these experiments that license has been sought for the presentation of the hypothesis offered at the beginning of this paper, which, it will be remembered, submitted that duodenal secretions of either intraenteric or extraenteric origin were in their disturbed function responsible for the death following duodenojejunal obstruction.

Some such hypothesis is at present necessary in order to explain the singular clinical syndrome of symptoms, as well as the singular phenomenon of the protective power of the first 35 cm. of the intestine, the presence of which, in the oral loop, suffices to prevent death before the opening of the stoma control.

THERAPEUTICS

Aside from the purely scientific interest which centers in these studies, the possibility that from them important changes may be made in the therapy of duodenojejunal obstruction is of the very greatest importance. Treatment obviously should be based on the conception that the lesion is an autotoxic one, and that the source of the lethal agent is in the duodenum. The second logical conclusion is that the blood must be filled with the toxic products, of whatever nature they may be, and that the modern method of bleeding followed by transfusion from a healthy individual is indicated. I can not refrain from suggesting that a third possible therapeutic agent may be invoked, namely, that a protecting serum may be developed from the long-looped dogs. Now that these studies have made possible the preparation of dogs which shall be made moderately sick from a toxemia produced by leaving sufficient of the jejunum in the oral loop just to save them, it should be an easy matter to determine what effect, if any, the serum from these possible immunes might have on the short-looped animals in which there was no protecting jejunum in the oral loop.

Such are the three lines of experiments which are at present being developed, and in regard to the two first, namely, retrograde irrigation of the duodenal oral segment through the stomach, combined by bleeding and transfusion, I am glad to state that enough work has already been done to justify the hope that a noteworthy decrease in the present high mortality of this lesion should follow bleeding, transfusion from the normal, and retrograde lavage. In a dog it is easy to accomplish, the pyloric sphincter offering no obstacle either to alkaline or acid irrigation fluids. It is quite conceivable that some modification of this method might easily be employed on the human being. The technic consists in simply drawing the oral loop to the surface where it is made fast; in inserting a catheter which is connected to a douche bag and allowing the flow to take place toward the stomach. A stomach-tube should first be introduced. Through this, as soon as the duodenal current is established, an immediate flow of the greenish-yellow duodenal contents pours freely from the stomach-tube. In human beings it would be possible, and perhaps worth while, to maintain a slow irrigation of the oral intestinal loop somewhat after the so-called drop method of Murphy for irrigation of the colon. On experimental grounds it would seem desirable that such washing of the oral loop should be done thoroughly before the obstruction was removed, because, as has already been shown, the mechanical presence of the obstruction is no menace to the patient, it being the absorption of the duodenal products which causes the symptoms.

In closing, and in support of the hypothesis presented, I would quote from a few authorities: Adami says: "We are, in short, only at the beginning of a knowledge of intestinal intoxication. Indol may possibly induce symptoms, but something more would seem necessary to account for the greater symptoms of ileus."

Magnus-Alsleben has shown that the contents of the stomach and duodenum are distinctly more toxic than those of the lower part of the bowel. In regard to immunization against enzymes as contrasted to that of bacteria and their toxins, he states that the development of antienzymes is limited and that it does not become extreme.

Vernon, in his recent book on the antiferments, states that enzymes closely resemble toxins in their power of stimulating the tissues to form antibodies.

Korschun states that the relation of renin to antirenin closely observes the laws of toxin to antitoxin.

Sachs immunized geese against pepsin twenty times above the normal.

Achalme made antitryptic serum. Finally, I may close with a quotation from Vernon's preface: "The cellular protoplasm of all living organisms is made up very largely of ferments or enzymes, and many or most of its properties are dependent on their activities."

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KNOTT, GUERRY AND MAURY

Dr. W. D. Haggard, Nashville, Tenn.: I was particularly impressed with the results obtained by Dr. Guerry in his cases of appendicitis. In reference to the technic spoken of by Dr. Knott, I think that most men are agreed that simple ligation of the appendix is sufficient. I prefer catgut to silk; I see no disadvantages pertaining to the catgut, but see many in the use of silk. I think, too, that in the interval case it does not make much difference, but it is a nicer way to invaginate the appendix. I have been accustomed to employ a technic which seems to be rather general—crushing the base of the appendix, ligating with catgut, invaginating the small crushed stump and closing it up with purse-string sutures of linen. It leaves nothing to be desired. With reference to that ever-recurring but delightful phase of appendicitis, when to operate, I think that we are now more agreed than we were years ago about the time for operation. Ten or a dozen years ago I learned that the cases we lost were the third, fourth or fifth-day cases. I declined to operate and found that a number of patients survived with abscess formation that could easily be evacuated at any time from the tenth to the fourteenth day. Now, if the early opportunity for safe operation has escaped, the patient is in that stage where his own resisting fluids are doing the work of repair admirably and should not be molested. I deliberately carry out the plan advocated by Ochsner, and with much satisfaction. I disagree with the theory that when Nature has carefully walled off the abscess, and it is adherent to the abdominal wall, that it is wise to search out the appendix when it is a part of the abscess sac. There are a great many delayed cases in my section of the country, and we operate on these patients simply by incision and drainage. We do not bother about the appendix, and all the patients recover. I think that it is unwise to break up adhesions that Nature has so carefully produced for the ten days preceding and thus take a chance of disseminating the infection. I think the other is the better plan. I believe that in general it is much safer to incise and drain the abscess. In my experience, comparatively few, about a fourth, require reoperation. In the third and fourth-day cases, we are not operating for appendicitis; we are operating for peritonitis. The golden moment has gone by, and I say to the patient and sometimes to the doctor, who is always most insistent for operation at that inopportune moment, when he did not insist on operation before that, that we are in the position of the man whose house is on fire from the explosion of a gasoline stove; why rescue the stove; the house is on fire? We get the appendix, but the patient dies. Put out the fire and the stove need not be considered.

Dr. E. MacD. Stanton, Schenectady, N. Y.: About two years ago I analyzed the pathologic findings in 1,019 cases of appendicitis occurring in the Albany City Hospital and in Dr. Ochsner's service in Chicago, while I was with him. I undertook this study because I was convinced that much of the confusion as to the pathology of the disease as described in the standard works on the subject was due to a failure to recognize the fact that inflammatory processes originating in the appendix pass through a definite sequence of changes, just as inflammatory lesions located anywhere else in the body. This study brought out one fact which I wish especially to emphasize, and that is that appendiceal peritonitis, like any other form of peritonitis, except that due to gross perforations, such as perforating gastric ulcer, will, if one will only stop the peristalsis, undergo a definite and clean-cut sequence of changes, showing almost no tendency to further spread, but, on the other hand, almost invariably ending in the formation of a definitely localized periappendiceal abscess. In the first two days of the disease, we are dealing with the appendix, and if it is removed the peritonitis, if present, will take care of itself. After this period, and until the period of localized abscess formation, we are dealing with a diffuse, undrainable intraperitoneal lesion but little if at all benefited by removal of the appendix, and efficient drainage at this time is impossible. If things are left alone for a few days it will be found that all these patients at the eighth or ninth days have localized abscesses. The patient has not died in the meantime and there is now an easily treatable—a surgically drainable—lesion. One more thing I wish to emphasize and that is the danger of letting these abscesses go on beyond this period, for it is after about the twelfth day that we find the pus beginning to seek exits of its own, and it is only after this time that we begin to see pyemia, metastatic abscesses and the various complications resulting from old neglected abscesses.

Dr. W. L. Rodman, Philadelphia: I am fully in accord with the position taken by Dr. Knott. There are many ways, and good ways, of treating the appendix, but it seems that the more simple the way the better all things considered. I believe that in the vast majority of instances simple ligation of the appendix, with cauterization of the stump, is better than crushing and sequestration of the stump. I think that it is better to do a subperitoneal amputation of the appendix, cover over the end of the stump to diminish the danger of infection primarily, and also to render the danger of adhesions forming subsequently entirely a negligible factor. I have never seen secondary hemorrhage after simple ligation of the appendix, but I have known it to occur in more than one instance after the purse-string suture has been used; in one case I was told that there was a large fecal extravasation into the peritoneal cavity, resulting, of course, in a fatal peritonitis. Therefore, it seems to me that in this operation especially which must be done so often, and done under the most adverse circumstances by operators who have not the best assistants or environment, that the simplest technic is the best. In regard to the treatment of appendicitis as outlined by Dr. Guerry, I am fully in accord with his position. There can be no doubt that such patients should all be operated on within the first thirty-six or forty-eight hours, and if we do not see these cases early, then it is perhaps wise, in the vast majority of instances, to wait until there is a safer time for operation. In other words, it is too late for early operation; it is too early for a late and a safe operation. I think that we cannot give too much credit to Dr. Ochsner for laying down for us a safe rule to follow in these cases. I am satisfied that by complete rest in such instances, and the withdrawal of all food and drink, so as to eliminate peristalsis, we give Nature time to shut off the infection from the general peritoneal cavity. It is the safe method to pursue.

There is one other point in which I agree with Dr. Haggard. I do not believe that in every case it is best to break up adhesions and remove the appendix. I think that as a general rule it will be best to drain the abscess cavity, and then, at a later time, say in from three to six weeks, reopen the abdomen and remove the appendix, when it can be done with perfect safety. I have most positive convictions on the subject of the treatment of appendiceal abscess. It is a safe condition if one will choose the right time and not attempt to do too much. This is not the time for ideal, but for life-saving surgery. Provide for drainage and never mind the appendix unless it prevails or is found after a limited search for it. If one does break down adhesions and looks for the appendix, there are potentialities which cannot be ignored. It is in my opinion dangerous surgery, and to do it is simply courting disaster.

Dr. Robert T. Morris, New York: In regard to the stump of the appendix, it seems to me that we now have the question placed on rather simple principles since the experiments of Seelig showing that the mucosa disappears under the pressure of a simple catgut ligature. If we apply a simple catgut ligature to the stump, sterilize the stump with carbolic acid and neutralize that in thirty seconds with alcohol, this stump then lies against parietal peritoneum, which is just as good as any other peritoneum that the patient happens to have about him. In many cases we waste a lot of time in doing beautiful ideal work about the stump, and we forget that there is a patient. It is all stump and no patient. In a certain class of cases we must get through with the work as quickly as we can. It is with difficulty, perhaps, that we get down through adhesions and pus to the appendix. Are you going to do beautiful artistic work? Not a bit of it. Snap your forceps on the stump and leave them there until the next day. Then take them off. You will not have fecal fistula very often. If one occurs it has a tendency to care for itself.

The Ochsner treatment is one of the most important things that was ever brought forward, but instead of carrying it out exactly as Dr. Ochsner does, I believe in doing an operation consuming three or four minutes. Get in, snap forceps on the appendix, take out the burning gasoline stove, as Dr. Haggard says, and put in a little drain to take out the gasoline, too. You are not doing very much to that patient. You are not lessening his chances very much. Thirteen years ago I reported a series of cases with a 2 per cent. death rate. One or two very prominent men said that these statistics could not be accepted. It meant a selection of cases for favorable report, they said. There was no selection of cases. I operated in all consecutively. To-day half this audience perhaps does better work and gets better statistics than I did then. But at present we must remember that we are on the verge of a new era in surgery, the physiologic era, in which we are going to depend on phagocytosis and opsonins which the patient will manufacture himself to carry off the products of the infection better than we can do it for him with our artistic methods. And if that is true, what is the necessity of walling off with gauze through a big incision? Why fear getting pus on normal peritoneum? Let it get there; leave it there.

In regard to the safe interval that we have heard so much about. I have felt that the safe interval refers to the surgeon's reputation rather than to the safety of the patient. The interval is not the safest time necessarily. The safest time to operate is at the time when the patient is protected by his own hyperleucocytosis which he has called out. If the surgeon waits until that subsides, the patient has to manufacture a new lot of phagocytes for his interval operation.

Dr. W. W. Skinner, Geneva, N. Y.: I am fully in accord with the method of ligating off the appendix without inversion of the stump. Adhesions form not to dead tissue, but to injured and partially living tissue. I have a little modification, one that is a time-saver. I ligate the appendix itself with linen and the mesoappendix with iodin catgut. The two ligatures are held by the assistant side by side, with the ends presenting. I then pass a sharp-pointed hemostat through the clear space which is at the base of the appendix, where the blood-vessels arch over and leave a little clear space, like that which is found near the ovary. The ends of the ligatures are placed in the jaws of the forceps, drawn through, and given a half turn, or maybe a whole turn, which forms a chain stitch. The linen is thrown around the appendix and tied with one knot. The catgut is tied in one knot around the mesoappendix, slipping it down on the mesoappendix so as to ligate it as far as possible from the base to prevent puckering, as sometimes occurs. The appendix and mesoappendix are then cut across, before tying the second knots in the ligatures. This allows the ligatures to slip a short distance in tightening, a very important point, because one can thus crush the stump of the appendix and of the mesoappendix with the ligatures. Danger comes not from dead tissue, but from partially dead tissue. The ligation must be absolute. The advantages of the ligation method have never been fully stated. In the inversion method one makes a little crypt or pocket in which there may be gas-forming bacilli, which by burrowing between the intestinal coats may cause a widespread emphysema of the intestine, and possibly gangrene. The dangers of that procedure have never been fully stated, and I believe they exist.

Dr. Ernest Laplace, Philadelphia: Appendectomy must be simplified. It must be performed with rapidity and safety, having in view the prevention of hemorrhage and flow of intestinal contents, and, so far as possible, the prevention of subsequent adhesions. The appendix should be ligated at its base tightly and cut off 1 millimeter above the ligature with a pair of straight scissors. As a result, there is a bulging of mucous membrane; this should not be cauterized for fear of subsequent necrosis. The bulging mucous membrane should be cut off with curved scissors, leaving a sterile fibromuscular structure. This is an ideal method of removing the appendix quickly, safely and with no danger of infection. The stump of the ligated mesoappendix is then brought in contact with the stump of the appendix and tied. The surrounding serous surface is sewed over the stump, removing all danger of adhesion. The Ochsner method is ideal when it can be practiced. Unfortunately, we do not always know from the first the nature of the infection, which in some instances may, like erysipelas, run a most acute course to a fatal termination. Again, patients do not always give an accurate history of the case, declaring the attack to have started a few hours before, whereas in reality it may have lasted several days. These misleading elements in diagnosis render a certain number of cases unsuited to the Ochsner method of treatment, and, therefore, while appreciating the great value of the method, we should never cease to exercise the greatest judgment in applying it in each particular case.

Dr. W. J. Mayo, Rochester, Minn.: Dr. Ochsner's position to-day is exactly his position of ten years, eight years, and five years ago. It is not Dr. Ochsner who has changed, but the rest of us. What was the cause of this particular change? Dr. Ochsner and I have been closely associated, and I have learned very much from him during the last fifteen or twenty years. Dr. Maury brought out a very important point, and that is the great necessity of keeping the stomach empty and removing the fluids that regurgitate back into the stomach. We say to our interns in the hospital at Rochester: "Take the stethoscope off your neck and carry a stomach tube around in place of it." We reduced the mortality in gall-stone and stomach cases 50 per cent. when we discovered that with the stomach tube we could remove these fluids and that by removing many cases that formerly terminated fatally went on to recovery. It can be pretty nearly put down as an axiom that when the surgeon sees the patient on the morning after the operation and notices a little green spot on the clothing, or if the patient is restless and uneasy, he should pass the stomach tube. There is nothing to which we can draw attention that will be of greater importance to us in getting results than the proper use of the stomach tube. Keep the stomach empty. Dr. Guerry's results are marvelously good and show the wonderful improvement which has come about within the last few years in the operative treatment of appendicitis.

Dr. A. J. Ochsner, Chicago: The last time we met in Atlantic City, after the appendicitis fight was over, I predicted that our friends, the enemy, would come over to our side before we met in Atlantic City again. The reason they have come over is this: The country doctor, with but a slight amount of training, but with the good sense of listening and doing exactly what we recommended, went home and carried out this plan of treatment. Afterward he found that his mortality was less than that of the greatest surgeons in the country. That is the reason why surgeons, internists and physicians in general now carry out the fundamental principles involved in that treatment. They consist primarily in absolute rest. I am very glad that Dr. Maury hinted at the secret of it to-day. He removes the cause of the poisoning, the cause of death from intestinal obstruction, by washing out the stomach and removing the septic material, and washing out the stomach again if necessary and never putting anything into the stomach until the danger is over. Never cause any return of peristalsis by giving a large enema, and never give cathartics or food to start up the peristalsis. In that way one will provide conditions such as Dr. Maury provides in his experimental work. In the meantime there has come to our aid a knowledge of the opsonins, of the sterilization of abscess cavities in the region of the appendix and of the pelvis, so that we have now, I believe, conditions which are perfectly plain. So long as the appendix still contains all the septic material it should be removed at once. After that, even if a surgeon has almost superhuman skill, like Morris, Mayo, Deaver and others, he should not remove the apepndix until it is safe for the patient. This condition of safety can be accomplished in more than 98 per cent. of all cases of gangrenous or perforative appendicitis by gastric lavage, giving absolutely no nourishment of any kind and no cathartics by mouth, by giving no large enemata, by giving continuous normal salt solution by the drop method by rectum, and by giving exclusive rectal feeding as shown so well by Dr. Guerry.

Dr. J. W. D. Maury, New York: We transfused all these animals, using the simple glass tubes Dr. Brewer devised. They work very well; the blood does not clot in them for eight minutes, and one can exsanguinate the animal before that time.

The transfusion has been preceded by a moderate degree of bleeding. Then we have devised in our laboratory a method for the reconstruction of the common bile duct, which I think may be of interest to you. It was devised by one of the students, and consists in the application of the omentum to the side of the duodenum, along which a simple rubber tube has been placed which has a sponge attached to the end of it, which is passed into the duodenum through a small opening. It is a very ingenious device. Of course, the common bile duct is removed, and the tube takes its place. This tube is ultimately removed by peristaltic traction on the sponge. We have not had an opportunity to employ this technic long enough to see how permanent the good results will be. The fistula is not lined with fibrous tissue but with endothelial cells so that we hope its usefulness will be permanent. We have some cases which have been functionating perfectly for three months.

WORK-CURE

A REPORT OF FIVE YEARS' EXPERIENCE AT AN INSTITUTION DEVOTED TO THE THERAPEUTIC APPLICATION OF MANUAL WORK *

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It may be stated without fear of contradiction that suitable occupation of hand and mind is a very potent factor in the maintenance of physical, mental and moral health in the individual and in the community. Conversely, it has been recognized, though not too well emphasized, that the right kind of work, properly carried on, may be a valuable remedy in certain functional nervous diseases when unsuitable occupation has been the rule, when suitable occupation has been misused or when idleness, either from choice or necessity, has been the habit.

The normalizing effect of suitable manual work or even of well-chosen intellectual work on the neurasthenic or psychasthenic who has been idle or overworked and who has been for years the prey of mental and nervous complications, has only to be seen to be profoundly appreciated. In these cases in which the tired mind tortures itself with doubts and fears and spends the long days in useless self-analysis and in appreciation of mental and physical suffering, it is probable that progress toward health is often indefinitely delayed because no occupation is found or even attempted. But the difficulties in the way, first, of finding a suitable employment for the neurasthenic, and then of inducing the patient to exert himself in his own behalf are very great and have made progress along such lines quite slow. Unfortunately, it is also true that ill-advised work can be productive of positive harm and may result not only in deepening discouragement, but in the intensifying of all symptoms.

I have for a long time felt that adequate study of this problem could be made only in an institution devoted to that object. It is no more reasonable to suppose that such a complex remedial measure as work can be successfully used haphazard than that drugs and other agents should attain their fullest usefulness without the aid of laboratory or hospital experience.

Having these ideas rather clearly in mind, though without the cheering knowledge of similar work having been done elsewhere, I established, some five years ago, a small workshop for the making of hand-woven fabrics in cotton, wool and linen. The venture was looked on as a strange one for a busy general practitioner, and, indeed, the growing industry has been a serious financial burden and a great consumer of time. But the lessons the shop has taught and the ease with which it has made possible the management of an increasing number of neurasthenic patients have in every way justified the experiment.

The work-cure has proved to be an excellent background and basis for medical treatment of the usual sort and for psychotherapeutic measures of one kind or another. It has also, in a surprising number of neurotic cases, proved almost the only remedy needed to bring about satisfactory improvement.

In pursuance of this industrial idea at Marblehead a number of the artistic crafts have gradually been introduced. These crafts are chosen because of their almost universal appeal, because of their essential dignity and because of the possibilities of very gradual acquirement. The crafts are chosen also because proficiency along such lines is a thing which may well be valued by any one, whatever the education or position in life may be.

From the first, the patient is taught to economize strength—to do deliberately and without undue excitement what simple manual work may be deemed advisable. He is shown, for instance, that he can saw through a piece of wood without grasping the saw with a crushing grip. The simplest mechanical acts are often at first chosen, as they give in themselves the least opportunity for mental and physical fatigue. These mechanical acts are repeated, with frequent intervals of rest, until they are accomplished normally and without fatigue. Gradually the difficulties and requirements of the work are increased, the essential point being the economy of nervous energy and the maintenance of a simple and direct mental attitude.

If the work has no interest to the patient he is asked to do it just the same and he is encouraged to expect results in the shape of better physical strength at least. There is never any pushing or urging, but always a plain statement of facts. "Do this, and you will in the end benefit by it, although at present it may seem to make you worse." The patients, as a rule, enjoy the novelty of the treatment and forget for the time something of their worry and suffering.

It is not hard to believe that after a certain amount of such mechanical education the mental processes take the cue, so to speak, and the patient finds himself thinking as well as acting in a simpler, more methodical way. It has been found by experience that if progress is made gradual enough the occupation may be pursued with astonishing benefit even in cases in which fatigue and pain would seem to prohibit any sort of activity.

The idea that manual work is wholesome and developmental, and that it may pave the way for successful medical treatment, or that it may be in itself a curative agent, is, of course, not new. But the systematic use of manual work for therapeutic purposes in an institution devoted to this object is believed to be decidedly new, if not heretofore untried in this country.[1]

It has seemed from the first that, to be most successful, the workshop should be pretty well divorced from

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* The research on which this article was based was aided by a grant from the Proctor Fund, administered by Harvard University.

[1] It seems that some such plan as this has been in operation in a public institution in Germany since 1899, in which year the first patient was admitted to the "Haus Schönow" under Dr. Lähr. At about this time also Grohmann in Zurich instituted a similar work, which is still in successful operation. Mention should be made of the excellent work of Dr. Blumer at the Butler Hospital in Providence and in one of the state asylums in New York when his efforts in the direction of the adequate employment of the insane were among the earliest in this country. Dr. J. J. Putnam at the Massachusetts General Hospital has within the past few years been making successful application of industrial therapeutics, as has also Dr. Fuller at the Adams Nervine Asylum. Mention should also be made of the work of Dr. Brown in California. Doubtless a good many individuals and many institutions not known to me are making daily use of similar methods of treatment.

the sanatorium; consequently the attempt has been made to bring about this condition. It may be said that the shops at Marblehead represent primarily a practical industrial plant. The patients are apprentices and pupils; they are, of course, especially provided for in the way of opportunities for rest and in the matter of ordinary medical treatment, but no attempt is made to carry out the elaborate treatment, hydrotherapeutic, electric, etc., of the sanatorium. If the patient needs these things he should stay at the sanatorium until he has received their full benefit.

If we are to restore the patient to the fullest usefulness, he must finally give up these artificial aids, and it has seemed to me that they had better be given up, in the main, when the work is begun. Perhaps this is a mistaken idea and it may prove that industrial treatment may be carried on with success at the sanatoriums. The danger, theoretically at least, is that in the sanatoriums the work will too often be looked on as a pastime, that it will be too apt to occupy a secondary place and, therefore, to fail of its full value to the individual. A division of the twenty-four hours into changeable periods of work, rest and recreation, plenty of air, wholesome food, wise suggestions and such medical treatment as may be indicated—these simple elements, together with a pretty complete detachment from all other obligations in life, represent in brief the industrial system of treatment.

This plan of treatment must exclude, for the time being, patients who are in need of constant care and nursing; but, owing to its great flexibility, it is available in some form in the management, at one stage or another, of a wide range of affections in which there exists a weakening or perversion of the functioning of mind or body.

If these premises are true, and the evidence is that they are, it should be of interest to the profession to know that such an industrial plant can be started and maintained by a general practitioner without initial capital and with very little outside assistance. The principal aid which the institution has received was in 1906, when I received from the Proctor fund, which is in the keeping of Harvard University, a grant of $1,000 "to assist in the study of the treatment of neurasthenia by progressive and graded manual occupation." Last year a friend of the institution erected, at an expense of about $600, an addition to one of the buildings. Other gifts amounting to $300 have been received from time to time from various sources and applied to the work. Although the plan has turned out to be more of a charity than its founder hoped, it has treated, in the main, people who are able to pay something. I personally have made no attempt to provide food and lodgings; but use has been made of a small hotel in the immediate neighborhood. The work has been conducted, therefore, under somewhat unfavorable conditions, with little or no nursing care and with living conditions such as are ordinarily considered suitable for well people and not for invalids.

The crafts employed at Marblehead have been hand-weaving, wood-carving, metal-work and pottery. They are named in the order of their clinical or therapeutic usefulness. The weaving has proved of unexpected value in that it provides a lively and growing interest with immediate and tangible results and from the fact that, as a general exercise, the old-fashioned hand-loom is a success. These great looms require simple but strong and effective motion of arms and legs simultaneously. Another advantage is that the coarse-textured woven fabrics do not require too close a use of the eyes.

Wood-carving affords excellent use for hands, eyes and muscles. The wood-work is particularly useful to beginners, as it gives opportunity for broad free arm movements of especial service as a balance to the finer, closer work which taxes the patience and endurance.

The metal-work is perhaps the least useful from the therapeutic point of view, and yet in certain cases it is of especial value. It has against it the facts that it is slow, requires very accurate fitting and measurements and dexterous handling of special tools. In its favor are the moral support and satisfaction which comes from having mastered a hard, intractable material. It is true, also, that some of the processes are relatively simple—notably that of polishing. Another good feature of this craft, particularly for pupils well on the way to recovery, is to be found in the hammering. The interest in the work is often so great that the noise and shock of the hammering pass unnoticed, thus accustoming the patient to harsh sounds—a not unimportant part of the industrial plan.

The pottery industry, although most of this work is done by the craftsmen rather than by the pupils, has developed very rapidly. The potter, who came directly from the State School of Pottery at Alfred, N. Y., proved to be a man of unusual ability. This young man with an able corps of designers and assistants has in a few years developed a ware which now ranks very high among the best ceramic products of this country.

It is interesting and suggestive to note that six out of the ten people now employed in teaching the crafts or as assistants came to these shops originally because of some physical or nervous handicap, but are now performing in full or nearly full capacity the exacting work of their positions.

I approach the matter of classification of cases and tabulation of results with a good deal of diffidence—not that I am ashamed of the results, but because it is so easy to overestimate or underestimate the results of this kind of treatment and because classification of the functional nervous conditions is still very unsatisfactory. During these first years of the institution most of the available energy and money has been devoted to the improvement of the industrial plant. The sanatorium possibilities have been sadly neglected and no attempt has been made to attract patients otherwise than by the excellence of the shops themselves. The figures are more interesting, however, on that account, for they suggest much better results with a constantly improving equipment. During the five years exactly 100 patients have been treated—9 males and 91 females. The accompanying table gives, as nearly as can be estimated, the results of treatment.

RESULTS OF WORK-CURE

Name of Disease.	Number Treated.	Improved.	Much Improved.	No Relief.
Hysteria	18	15	1	2
Insanity *	5	2	2	1
Neurasthenia severe	12	7	4	1
Neurasthenia mild	20	12	8	0
Neuroses	17	8	5	4
Psychoses or fixed idea	8	1	3	4
Unclassified	20	14	4	2
Totals	100	59	27	14

* It is not intended to treat at Marblehead any case of insanity. These cases were accepted in the early days of the institution.

Among these cases there were three cases of chronic appendix inflammation, subsequently relieved by operations. There were fourteen cases of defective vision wholly or partially relieved by glasses.

It has been somewhat difficult to keep track of the patients, but relapses have been very rare—relapse, that is, to conditions as bad as or worse than those for which relief was originally sought. Not counting those who have remained as teachers and assistants, the average stay has been three months. Ten patients have returned one or two times for continuance of treatment or instruction. As far as can be ascertained, about 25 per cent. of the patients have in some measure kept up their work and their interest in the work after leaving the shops. In a number of cases outfits of looms and accessory sets of carving tools, etc., have been furnished to pupils who wished to continue the work.

It should be said that the shops have to some extent been used as a school of applied art by persons who are not ill at all, but who wish to study one or more of these ancient crafts. Incidentally, too, there have been pupils who came as students and not as patients who found unexpected relief from cares and troubles in the atmosphere of quiet work.

The shops have already taken steps toward the establishment of a training-school where young women or nurses who wish to become qualified as teachers of these crafts may obtain the necessary training. It is hoped that these young women may extend the usefulness of the shops by acting as private instructors in the homes of patients or by teaching at other institutions.

It must not be inferred that progress has been altogether easy. On the contrary, as has been stated, the school has represented a serious financial burden. Mention should be made here of the fact that several of the craftsmen and teachers, appreciating the humanitarian element of the work and in view of possible future financial success, have been willing to work for a very little money—practically their living expenses—and in one case without any reimbursement, thus making possible the continuance of the institution.

The plant is very nearly self-supporting now, largely from the sale of its products, which are of excellent quality, thanks to the intelligence and constant activity of the skilled designers and craftsmen, to whom too much credit cannot be given.

I have found that the ideas embodied in this work appeal, as a rule, not only to the profession, but to people generally, and, finally, to the patients themselves, who rarely object to the life and who have often, indeed, found in it the elements of happiness and success.

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PRINCIPLES UNDERLYING SURGERY OF THE SPLEEN

WITH A REPORT OF TEN SPLENECTOMIES *

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Our knowledge of the function of the spleen has been so vague, and our ability accurately to determine its physical proportions so unreliable, that it has been impossible to recognize diseased conditions until they reached a stage so advanced that splenectomy became a necessary consequence. Therefore, surgery of the spleen has been destructive in character. Recent investigations lead to the speculation that many of the anemias and associated blood states may ultimately be best treated by operative procedures directed to the spleen and other blood-forming organs.

In its ontogeny the spleen probably goes back to a time before the development of the cerebrospinal nervous system. This is indicated by the fact that its only known nerve supply consists of filaments derived from the splanchnic sympathetic to the capsule, stimulation of which causes contraction. It is an organ of internal secretion controlled by chemical stimulation through the blood stream, in many respects resembling the liver. We may surmise that this form of stimulation has been quite adequate for function, otherwise the spleen would be more closely associated with the sympathetic ganglia, as are the adrenals and pituitary body. The internal secretion of the adrenals and pituitary produce their effect not only by chemical stimulation through the blood, but also by direct action on the sympathetic ganglia which enables a very small amount of secretion to produce widespread results. The sympathetic nervous system can be compared to a piano, the internal secretions being the fingers of the player, or to an internal telephone exchange within a building; and it enables small organs with scanty secretion, like the parathyroids, to work in harmony with other organs of internal secretion.

Evidently the internal secretion of the spleen is not important, as splenectomy does not produce serious results, the associated organs taking up the function.

A study of the spleen leads to the conclusion that it possesses three distinct functions: First, it takes part in blood formation, in which it is associated with the bone marrow, lymphoid and adenoid structures of the body. Second, it is a destroyer of worn-out red blood cells. Third, it acts as a filter of micro-organisms which may be contained in the blood and which are passed thence to the liver, probably for complete destruction and also as an aid to the liver in carrying on certain functions in relation to the metabolism of the food.

The fetal blood is derived from the spleen, liver, bone marrow, lymphoid and adenoid structures of the body. The liver loses this function some time before birth. In the adult the red cells are largely formed in the bone marrow, and the white cells in the lymphoid and adenoid tissues, including the spleen. In health the spleen loses its power to develop the red blood corpuscles and retains that of white cell production only to a limited degree, its chief function being to destroy worn-out red blood corpuscles. The ancestral blood corpuscle, from which both red and white have their origin, is probably the mesenchyme cell, a form of lymphocyte which appears first in the fetal blood. In leukemia there is a reversion to the ancestral lymphocyte or fetal type. In the grave anemias there is a tendency to reversion to primitive red blood cells, showing granular corpuscles of various sizes and shapes.

The spleen receives its blood supply from the celiac axis, identical in origin with the blood supply of those important derivatives of the foregut—the stomach, pancreas and liver. It does not, however, send its blood directly back into the general circulation, but the splenic vein joins the superior mesenteric and gastric veins to form the portal system.

It would appear that the liver, among other functions, neutralizes toxins and kills bacteria which may be picked up by the portal radicals from the digestive tract. Perhaps the spleen with its huge blood supply acts like a large lymphatic gland performing some analogous function for the general circulation; but that its blood must be still further changed by passage through the liver

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

before entering the general vascular system is shown by the method of venous return. This association of the liver and spleen is shown in the enlarged spleen so often seen in cirrhosis of the liver, and apparently in such cases without especial effect on the constituents of the blood, and also in the late stage of splenic anemia (Banti's disease) is often associated with secondary cirrhosis of the liver.

The first evidence of a spleen is a collection of mesenchyme cells in the posterior mesogastrium close to the developing pancreas. Its growth is fairly uniform, but there is considerable normal variation in size. It is the largest of the ductless glands, being five by three inches in diameter, weighs about 200 gm., and fits into the curve of the diaphragm behind the ninth, tenth and eleventh ribs, where it is molded to the fundus of the stomach. It is completely invested by peritoneum and is held in place by two folds of this membrane, the gastrosplenic omentum and the lienorenal ligament, both of which are attached about the hilum.

The blood vessels in the spleen travel in the trabecular framework to the pulp and Malpighian corpuscles, and quickly lose all but their endothelial coat. The scanty lymphatics are confined to the capsule. The trabecular framework contains much non-striated muscular tissue, which permits considerable rhythmic change in size during the digestive period.

Its protected situation, covered, as it is, by the lung and overlaid by the stomach and colon, renders it exceedingly difficult to ascertain moderate changes in size. Our ability accurately to map out a moderately enlarged spleen by percussion is open to question. I have examined a number of spleens manually during operation for other causes, and have been surprised at the inaccuracy of the ordinary methods of physical diagnosis made before operation. Comparatively few abnormal spleens are really recognized as such until the splenic border can be palpated below the free margin of the ribs.

Heretofore we have been unable to diagnose with any degree of exactness, until a late stage, the actual physical relations of the spleen to the disease with which it is either directly or indirectly associated. Therefore, our only surgical recourse has been splenectomy. It is altogether probable that certain diseases of the blood are due to an excess or perversion of splenic function, which could be controlled by operative diminution of its blood supply through ligation of an arterial division, or, by partial splenectomy, just as the thyroid gland is treated in Graves' disease.

I believe that surgeons can do much to establish a better understanding of the relation of the spleen to the anemias by routine examination of this organ during abdominal operations where an altered blood state exists.

Splenic enlargements, other than tumors, can be grouped in three general classes:

First, leukemias, in which the spleen pulp becomes converted into tissue resembling bone marrow, and in which the spleen, in connection with all the blood-forming organs, rapidly produces white blood corpuscles of the ancestral type, much as epithelial cells run riot in cancer—a probable reversion to the fetal form of blood.

Second, splenic anemia, the type in which the enlargement of the spleen is accompanied by a diminution of and change in character of the red blood corpuscles—apparently an excess of the adult function of the spleen, producing an unnecessary destruction of the red corpuscles.

Third, splenomegalia, an enlargement of the spleen of unknown causation, without marked blood changes or any apparent serious interference with the health other than mechanical. This class is one of convenience only and is closely related to the splenic anemias.

In addition to these three classes, two conservative groups of enlargement of the spleen can be recognized: First, the compensatory splenic hypertrophy which accompanies cirrhosis of the liver, and, second, enlargements which are the result of infectious diseases, i. e., tuberculosis, typhoid, syphilis and malaria (ague cake).

The sheltered situation of the spleen renders approach for purposes of operation exceedingly difficult unless the organ is more or less movable, which happens in a considerable percentage of cases.

We have usually made an incision through the left semilunar line and, if necessary, carried the upper end along the costal margin to the ensiform cartilage. Willy Meyer has added greatly to our means of approach by mobilization of the overlying chest wall. "The seventh, eighth, ninth and tenth costal cartilages are divided with the knife immediately in front of the ribs, also the union of three at the sternum." As yet, however, we have not found the Meyer procedure necessary. In some cases a left transverse incision joining the longitudinal will be found convenient.

In advanced disease adhesions will often be encountered, especially to the diaphragm, the separation of which will occasionally be difficult until after the splenic pedicle has been secured.

The most important step in the operation, if the vessels are fairly sound, is to grasp the vascular pedicle temporarily in rubber-covered elastic clamps. This must be done with great care, as the splenic veins are very delicate and tear readily. To grasp securely the pedicle of a large spleen the organ should, if possible, be "turned turtle" or at least sufficiently so to enable the hand to grasp the splenic vessels. With the fingers and blunt dissection a passage way is made around the pedicle and the elastic clamp applied and tightened down sufficiently to control the circulation until the spleen can be entirely separated from its attachments and delivered outside the wound. If splenectomy is the object of the operation, the pedicle can be secured at any time after the application of the elastic forceps, which are applied as close to the root as possible so as to leave ample space distal to the forceps for ligation.

If partial resection is to be done, temporary compression of the pedicle seems to be harmless unless there are gross vessel wall changes, and after the application of the clamp the desired amount can be resected and the hemorrhage controlled by buttonhole catgut suturing with a round needle, in a manner similar to that of resection of the liver.

It has been shown experimentally that reduction of the arterial supply by ligation results in atrophy of the spleen, and that as long as the veins are left intact, necrosis does not occur. If the splenic artery divides in the hilum, ligation of branches would appear to be an active competitor of partial splenectomy. We have not found the marked alterations in the walls of the blood vessels which have been shown to be often present at postmortem and which probably represent a terminal condition.

Our experience in surgery of the spleen has been limited to thirteen cases, three of which were conservative operations. One case was a gunshot injury in which hemorrhage from the lacerated spleen was readily controlled by buttonhole catgut suturing and gauze packing. In the second case, a movable spleen with severe attacks of pain from torsion of the pedicle was cured by fixation by means of suture and gauze packing. The third operation consisted of evacuation and drainage of a typhoid splenic abscess four months after the initial attack of typhoid fever.

Ten splenectomies were performed with nine recoveries. One case was a huge lymphosarcoma. The patient is alive and well now, over three and a half years after operation. The second case was one of tuberculosis of the spleen with primary recovery; present condition unknown. Four cases were splenic anemia; all of the patients recovered and were either entirely cured of their anemia or were greatly improved. Two cases were Banti's disease; one patient recovered and one died. Two cases were splenomegalias, that is, enlarged spleens of unknown origin. Both patients recovered.

Subsequent to four of the splenectomies for splenic anemia the patients complained of pain in the long bones at intervals for several months.

I would call the attention of those especially interested in splenectomy to the very able papers on the subject by Dr. J. Collins Warren[1] and Dr. George Ben Johnson.[2]

A brief history of the ten splenectomies has been compiled by Dr. Donald Guthrie, and is herewith appended.

Case 1 (617 G).—Miss B., aged 16, for three months had had attacks of rather sudden pain beginning in the back and referred around the left costal arch, severe at times, usually lasting a half hour to two hours; no nausea or vomiting; pain not attributed to food; no loss of weight.

Examination.—Anemic young girl; heart and lungs negative; stomach large and splashy; tumor in left hypochondrium extending downward and forward to midline; palpation showed it to be spleen. Pelvis negative, urine contained albumin and casts. Blood: Hemoglobin, 75 per cent.; reds, 4,000,000; whites, 4,000. Diagnosis, splenic anemia.

Operation.—April 7, 1904; splenectomy. Pathologic condition, tuberculosis.

Present condition unknown.

Case 2 (3539 P).—Mrs. M., aged 41, married ten years, with two children, youngest aged 4, no miscarriages, menstruation regular, had had from 8 to 10 years of age repeated attacks of malaria; none for fifteen years. Health was perfect until four years before coming under observation. After birth of last child patient noticed enlargement in region of spleen; it was not noticed again until seven months before examination. The past four to six months there had been some dyspnea with anemia, beginning at that time.

Examination.—Fairly well-nourished woman, anemic, heart and lungs negative, huge tumor extending from fifth rib down across abdomen one inch past midline into pelvis, notched. Liver extended one inch below costal margin, pelvis negative. Blood: Hemoglobin, 50 per cent.; reds, 4,504,000; whites, 4,600. Urine negative.

Operation.—Nov. 14, 1905. Splenectomy. Adhesions to tail of pancreas, a small piece of which was removed. Gastrohepatic ligaments and adhesions to diaphragm ligated. Some free ascitic fluid. Recovery good. Pathologic report, lymphosarcoma of spleen, weighing 2,375 gm. (8.67 pounds).

More than three years later the patient is enjoying splendid health; has gained 40 pounds in weight.

Case 3 (8869 G).—Miss S., aged 27, had known of enlargement in left abdomen for fifteen years. She had frequent attacks of digestive disturbance with anemia; two years before coming under observation she had a first attack, lasting five days, of acute pain in the upper abdomen, followed by edema; two weeks later a similar attack; then she was perfectly well for nine months. The following summer she had acute pain in left hypochondrium with much soreness in region of spleen; was well until summer before operation, when she became weak and much depressed. Three months before operation she had an attack of violent pain through the back, arms and left side of the abdomen lasting four days, followed by general edema; was ill for seven weeks.

Examination.—Jan. 6, 1907. Anemic young woman. Slight icterus; edema present about ankles and face, heart and lungs negative, huge tumor extending from under left costal arch downward and forward to the right, past the midline, filling the whole abdomen, and into the pelvis. Tumor hard and notched. Liver enlarged three inches below costal arch, pelvis negative, urine negative. Blood: Hemoglobin, 80 per cent.; reds, 5,200,000; whites, 4,800. Diagnosis, Banti's disease.

Operation.—Jan. 7, 1907. Splenectomy. Spleen adherent to diaphragm and stomach. Some adhesions to omentum and abdominal walls. Large white cheesy spots on surface. Accessory spleen entirely separate at the base of the omentum, size of pullet's egg, nearly round and very movable; not removed. Hypertrophic cirrhosis of liver with perihepatic adhesions. Ascites, several quarts of fluid. Omentum placed in adherent area to secure adhesions. Patient died twelve hours later from shock and hemorrhage. Pathologic report, chronic hyperplasia, spleen weighing 11 pounds, 12 inches long, 8 inches wide, 3 inches thick.

Case 4 (1074 P).—Mrs. McD., aged 27, had two children, youngest aged 3. Menstruation was normal; patient had had poor health for years; sick headaches every two to four weeks. For a year she had been weak, tired and unable to work. During this time she had a sharp pain at menstrual period radiating from the left costal arch to the clavicle. She had known for a year of splenic enlargement, which had grown slowly.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; spleen extended four inches beyond midline and filled the pelvis; hard and notched. Uterus retroverted; urine negative. Blood: Hemoglobin, 57 per cent.; reds, 5,388,000; whites, 3,000; polymorphonuclears, 42 per cent.; lymphocytes, 58 per cent. Diagnosis, splenomegaly.

Operation.—May 17, 1907. Splenectomy and extensive suturing of adhesions to diaphragm and under surface of liver to check oozing. Gauze drain through left loin. Recovery good. Pathologic report, chronic hyperplasia. Weight, 6.33 pounds.

Patient now enjoys excellent health.

Case 5 (9315 A).—Miss T., aged 37, menstruation normal, eight months before coming under observation noticed enlargement and hardness in left side of abdomen under costal arch. Steady growth to present size. General health fair.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; large tumor extending from under left costal margin downward and forward into the pelvis a few inches above symphysis, sharp-edged and notched. Urine contained albumin, granular casts, a few leucocytes. Blood: Hemoglobin, 49 per cent.; reds, 4,100,000; whites, 4,600. Cystoscopic examination negative except that catheter met an obstruction in left ureter, probably due to pressure of tumor which was easily passed. Diagnosis, splenic anemia.

Operation.—May 11, 1908. Splenectomy, spleen 12 inches long, 8 inches wide, 3 inches thick. Peculiar mottled appearance. Pathologic report, chronic hyperplasia. Weight, 10¼ pounds.

Patient's health is now excellent; she has returned to work.

Case 6 (A 11038).—Mrs. W., aged 39, had two children, youngest aged 15. Menstruation regular. Patient had been operated on elsewhere two years ago, left nephrorrhaphy. For ten years she had had a dull aching pain and a sense of pulling in the left lumbar region; for years severe migraine attacks, requiring morphin and chloroform. There was much tenderness over abdomen and pain at left costal arch referred into the lumbar region. A tumor was to be felt in the region of the spleen and left kidney.

Examination.—Thin woman, pale; heart and lungs negative. Tender at left costal arch and in lumbar region; pelvis negative; urine negative; cystoscopic examination negative. Blood: Hemoglobin, 80 per cent.; reds, 4,000,000; whites, 14,000; polymorphonuclears, 56.6 per cent.; lymphocytes, 43 per cent.;

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1. Warren, J. C.: Ann. Surg., 1901, xxxiii, 513-533.
2. Johnson, B.: Ann. Surg., 1908, xlviii, 50-65.

eosinophiles, 0.3 per cent.; basophiles, 0.1 per cent. Diagnosis, splenic anemia.

Operation.—Splenectomy, June 27, 1908. Pathologic report, chronic hyperplasia. Weight, 350 gm.

The patient's present health is good.

Case 7 (A 10324).—Mrs. L., aged 49, had two children, youngest aged 12;. no menstruation for two years. Nine months before coming under observation patient noticed tumor in the left abdomen which had grown gradually. Patient had become weak but lost little in weight; had some edema of feet at times; no urinary disturbance.

Examination.—Fairly well-nourished woman, pale; heart and lungs negative; large tumor in the region of the spleen, sharp-edged and hard. Cystoscopic examination negative. Pelvis negative. Blood: Hemoglobin, 70 per cent.; reds, 2,960,000; whites, 6,200. Polymorphonuclears, 93 per cent.; lymphocytes, 4 per cent.; eosinophiles, 3 per cent. Diagnosis, splenic anemia.

Operation.—July 2, 1908. Splenectomy, spleen filling whole of left of abdomen to median line, notched on posterior surface. Adherent to under surface of diaphragm, tail of pancreas, and to posterior wall of stomach. Removed with difficulty. Pathologic report, chronic hyperplasia. Weight, 7 pounds.

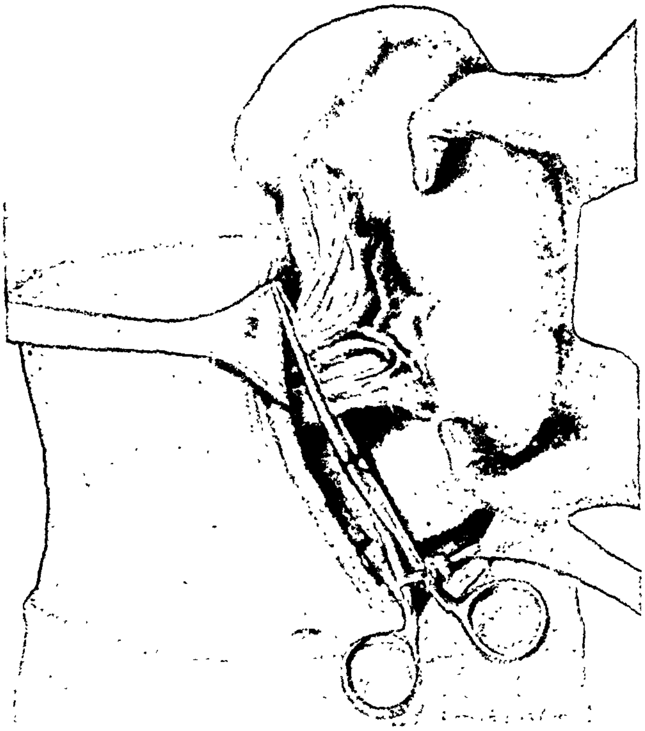

Fig. 1.—Temporary compression of the vascular pedicle of the spleen.

After operation patient was very ill with pneumonia, but recovered. Three letters report steady improvement. She is now in good health.

Case 8 (A 18026).—H. N., aged 26, had had pain in epigastrium and left costal arch, on and off for two years; weak tired feeling of late. He had lost 20 pounds in the last two years; no urinary disturbance.

Examination.—Poorly nourished young man; heart and lungs negative. Mass in left hypochondrium, moved downward to level of umbilicus on inspiration, rather soft, no sharp edges. Urine negative. Blood: Hemoglobin, 88 per cent.; reds, 4,100,000; whites, 10,200; polymorphonuclears, 65 per cent.; lymphocytes, 22.5 per cent.; eosinophiles, 2 per cent.; basophiles, 0.5 per cent.; transitional forms, 5 per cent. Diagnosis, splenomegalia, abdominal tumor from enlarged spleen.

Operation.—Dec. 30, 1908. Splenectomy, spleen extending a hand's breadth below the rib margin to midline. A number of accessory spleens in pedicle which were not removed. Recovery good. Pathologic report, chronic hyperplasia. Weight, 430 gm.

Patient is much improved and able to work.

Case 9 (A 20818).—Dr. K., aged 30, had had malaria in 1898; was told that spleen was enlarged. Four years before coming under observation, after being in Cuba fifty-one days, he had amebic dysentery. Amebæ were found in stool only second summer, but patient had three summer attacks lasting several months each time. General health was apparently good except for pallor. Weight same, 150 pounds until April, 1908, when he vomited up some blood and passed large amount by bowel; in May, 1908, he had similar hemorrhage just after a meal. Case was diagnosed as ulcer of the stomach. Fasting treatment given. Two months later he had bloody stools. Blood count taken; hemoglobin, 50 per cent.; reds, 3,500,000; whites, 3,000. Splenic enlargement found, which had been noticed in 1898. In August, 1908, patient had severe hemorrhage by mouth and bowel; was confined to bed, very weak and anemic. In October, 1908, he was getting ready for gastroenterostomy, when he had the most severe hemorrhage of all. Hemoglobin dropped to 15 per cent and reds to 1,000,000. In September, 1908, he had ascites, was tapped six times since; 4½ to 9 quarts obtained each time, last tapping one week before examination.

Examination.—Thin young man, very pale and sallow, heart and lungs negative. Weight, 140. Appetite good, bowels and urine in good condition. Tumor in left hypochondrium, extending from sixth rib down and forward to level of umbilicus, 1½ inches extent to midline. Tender, hard but not notched, liver small, extending from fourth to eighth rib; ascites marked; separation of recti. Blood: Hemoglobin, 47 per cent.; reds, 3,300,000; whites, 2,500. Small lymphocytes, 17.5; large, 7. Polymorphonuclears, 73; transitional forms, 5 per cent.; eosinophiles, 1.5; basophiles, 0.5. Diagnosis, Banti's disease.

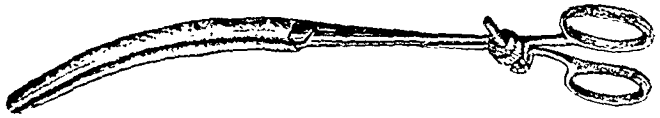

Fig. 2.—Lower's forceps for compression of the pedicle of the spleen.

Operation.—Mar. 4, 1909. Splenectomy. Ascites. Liver cirrhotic. Pathologic report, chronic splenitis. Weight, 1180 gm. Patient was aspirated on tenth day; four quarts removed; fluid did not reaccumulate. Improvement in blood and weight good. Patient is gaining rapidly.

Case 10 (A 22026).—Mrs. B., aged 53; mother died of spleen trouble; father of tuberculosis at 79. Patient had had no children, no miscarriage; menopause six years before coming under observation. At 20 years of age patient was in bed twelve weeks with articular rheumatism. For eight years, off and on, she had pain or ache in epigastric region, usually steady for a month, then relief for four to eighteen months or more, with perhaps two or three days' ease at a time, during period of attack. She said a little blood would come up in the mouth during spell, and ease would follow for a day, but there was no cough or vomit, no food distress, no loss of appetite and only a little loss of flesh in the past six months. She had had no bowel complaint since November, 1908. Ache in epigastrium had been steady. At Christmas time patient noticed a hardness in epigastric region, more to left.

Examination.—Well-nourished woman, pale, skin wrinkled and dry, heart and lungs negative. Tumor extended down and forward from sixth rib, left side to level of umbilicus, one inch inside midline. Tumor moved on respiration, notched and tender. No ascites found. Blood: Hemoglobin, 68 per cent.; whites, 2,500; reds, 3,600,000; small lymphocytes 23, large 3; polymorphonuclears, 72; transitional forms, 1; basophiles, 1. Urine, sp. gr. 1020, acid, trace of albumin, few hyaline and granular casts. Diagnosis, splenic anemia.

Operation.—April 13, 1909. Splenectomy. Pathologic report, chronic splenitis, typical sago appearance. Weight, 8 pounds.

Patient's present condition is good.

ABSTRACT OF DISCUSSION

DR. A. J. OCHSNER, Chicago: The field of spleen surgery is at present exceedingly circumscribed, for the reasons given by Dr. Mayo, and because we do not yet understand the full relation between enlargement of the spleen and anemia. Twenty years ago, in 1889, while the Italians were making use of the advancement in abdominal surgery and applying it to the removal of large spleens, which were so numerous in Italy, I had an opportunity of assisting my chief, at that time Dr. Charles T. Parkes, in the removal of a number of spleens. We soon learned that the spleen in which removal was desirable could not be removed with safety to the patient, and in the case of other spleens there was no occasion for removal. In our part of the country, these other spleens which became enlarged as the result of chronic malaria, were harmless unless the pedicle was twisted. I have since removed a number of spleens and have come to the conclusion that when a spleen is removed in a case in which there is not a splenic leukemia of advanced character, the operation is quite as safe as is the one for removal of the thyroid or of the uterus or any other simple operation, provided that the same systematic plan is followed. There should be no severe traction on the pedicle of the spleen or great manipulation of the veins, because they are exceedingly friable. After severing the pedicle below, care should be taken to protect the smaller veins which often enter the spleen from above. If one is careless, one will find that some of the large veins which pass through the accessory ligament are exceedingly troublesome, but when these things are looked after in patients not suffering from splenic leukemia, the operation is a safe one. I have had one of these patients go through a severe pneumonia afterward under the care of one of our best internists, who found no difference whatever in the course of the disease. If the leucocytosis is higher than 50,000, then one can count on a fatal hemorrhage after the splenectomy. My experience in fifteen or twenty cases is not sufficient to be of any value except as a guide. If there is leucocytosis accompanied by a rise in temperature, then, of course, there is no occasion for the operation, because one would no more operate in this chronic condition while there is an acute infectious condition present than for any other chronic surgical condition. Therefore, if the leucocytosis is the result of the leukemia, one must be guarded in the operation, and not fear hemorrhage from the large vessels at all, but hemorrhage from the small adhesions. The blood will continue to ooze out. Gauze may be sutured over the surface, and the blood will ooze out of the stitch holes. It will ooze out, no matter what one does in these cases of advanced splenic leukemia.

THE PROLIFERATING FORMS OF CUTANEOUS SYPHILIDS *

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When through the works of Schaudinn and Hoffman we have learned to know the germ of syphilis, and when we have found that to be a living spirillum belonging to the class of the protozoa, we can be satisfied that we have made a forward step in the intimate knowledge of syphilis and also of other diseases produced by kindred organisms. In a short article on elephantiasis[1] which was presented to the American Dermatological Association, I remarked that this condition of the penis and scrotum was often due to syphilis, and that all cases of elephantiasis are started by the presence of infectious germs or of parasites, which cause continuous irritations in the tissues and a stasis in the progress of the lymph. Indeed, after the observation of Blaschko[2], who found the presence of spirochetes in the syphilitic tissues, in the tunics of the blood vessels, in their divisions, in the surrounding infiltration, in the coagulated lymph, in the lymph spaces and in the lymph vessels, it is not difficult to infer that the presence of the germ is the cause of the proliferation of the tissues.

Cornil and Ranvier[3] had already outlined the idea that a prolonged irritation of the derma caused an hypertrophic dermatitis with formation of papillary productions of the skin. This tendency to formation of fibrous tissues in the skin is very marked in the syphilitic inflammations of the skin, which are considered as the exponent type of the formative dermatitis. In the old syphilitic papules the lesion consists only in the enlargement of the papillæ.

In all infectious inflammatory processes of the skin Unna[4] finds that through the formation of thick epithelium the papillæ are irritated and proliferate. They are deformed, elongated and often subject to secondary decussation. In some cases of proliferating syphilitic lesions the same condition is found. In consequence of the irritating secretion of the mucous patches, of the presence of excretions, of neglect of cleanliness, the epithelium is macerated and causes irritation of the underlying papillæ, which start to proliferate. This condition is found in the secondary period when hypertrophic mucous patches are proliferating (Fig. 1).

In tertiary forms the proliferating papillæ have their origin from ulcerative forms and the epithelium has no relation to the irritation. This vegetating condition of the papillæ is often associated with and has close relation to elephantiasis. Indeed, the tendency of the syphilitic process to produce lymphatic stasis is well established. The edema indurativum of Sigmund, the *œdème scléreux* of Fournier, the edema induratum of Lang, are the result of a firm edema-like infiltration in the skin and subcutaneous tissue. Tschlenow,[5] following the ideas of Pick, considered elephantiasis of the vulva as a result of syphilis. He referred to a woman with enormous elephantiasis of the labia, in whom the skin was covered with wart-like efflorescences extending to the vagina and the affection had begun with papillary proliferations.

Balzer and Deshayes[6] found in a patient who had been syphilitic for thirty-three years, suffering with tuberous vegetating syphilid of the thigh for ten years, an enormous edema of the penis and of the scrotum. When these luetic lesions healed up hypertrophic scars were formed. In the same man the tongue was covered with hypertrophic papillary growths. On those papillary growths specific treatment had very little influence.

From my experience I can state that vegetating papillomata in syphilis can occasionally develop in all periods of the disease. They may be found on an initial lesion, and also on other syphilitic products of the skin and mucous membranes. These vegetations, although harmless, are troublesome on account of their obstinacy and their tendency to recur. In my case, shown in Figure 1, the vegetating papillary growths had their base on an eruption of mucous patches thickly crowded on the labia majora and minora, extending to the perianal region downward and to the clitoris, pubis and fossa crurogenitalis upward in the form of a triangle. Many of these formations were large and pedunculated. Infection in this woman dated back eighteen months.

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* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Ravogli: Elephantiasis of Penis and Scrotum Due to Syphilis, Jour. Cutan. Dis., February, 1907, p. 61.

[2] Blaschko, A.: Ueber Spirochætæ Befunde in syphilitisch erkrankten Gewebe, Berl. Klin., 1906, No. 13.

[3] Cornil and Ranvier: Manuel d'histologie pathologique, Paris, 1876, p. 1204.

[4] Unna, P. G.: Die Histopathologie der Hautkrankheiten, Berlin, 1894, p. 205.

[5] Tschlenow, M.: Syphilis und Elephantiasis der Vulva, Med. Oboz., 1902, No. 11; ref. Arch. f. Derm. u. Syph., lxvi, 299.

[6] Balzer and Deshayes: Syphilides tertiaires avec éléphantiasis des organes génitaux et glossite hypertrophique, Ann. de dermat. et syph., 1906, p. 196; ref. Arch. f. Dermat. u. Syph., lxxxvi, 422.

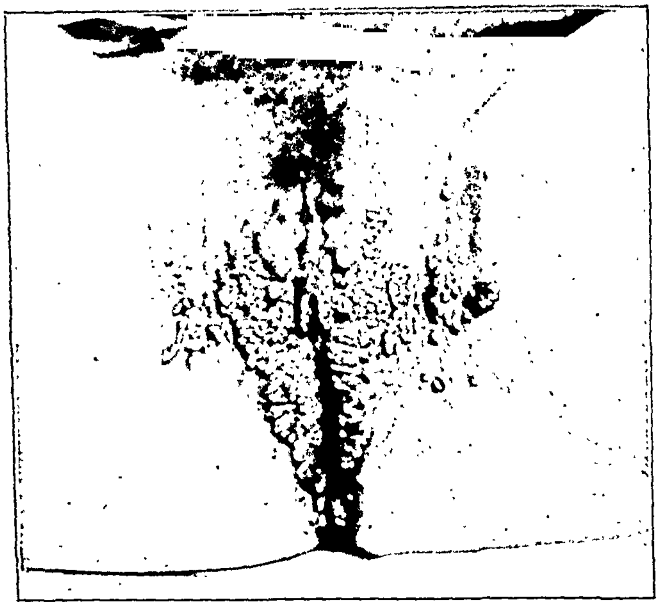

Fig. 1.—Vegetating papillary growths on the labia majora and minora.

Vegetating forms of syphilis of this kind have their origin in papules, which occur on the skin and on the mucous membranes. In a young woman infected for five years I found two vegetations on the dorsum linguæ.

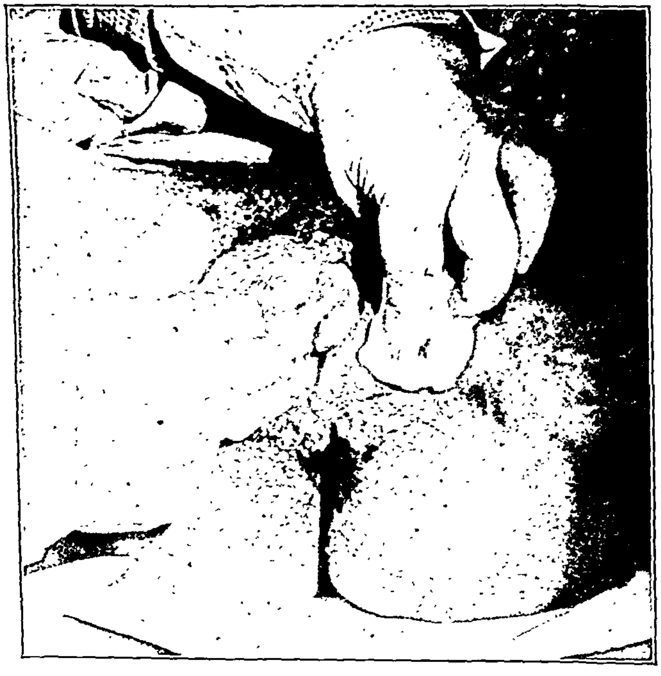

Fig. 2.—Papillomatous growths and elephantiasis of the labia.

They were of the size of a grain of corn, oval, hard, thick, slightly reddish, of a shiny appearance. I had them scraped off, but after healing they are still somewhat perceptible. Allen[7] referred to cases of vegetations under the surface of the tongue, lips and soft palate in syphilitics. The surface of the elevated plaques spreads irregularly from unequal lengths of the papillæ and forms papillomatous groups of cauliflower appearance.

In late syphilis *papillomatous growths come together* with a thickening of the tissues in an elephantiasis form. A mulatto woman aged 30 (Fig. 2), infected by her husband at their marriage twelve years ago, previously weak and anemic, is greatly run down in her general system, showing plainly the effects of the diathesis. No syphilitic symptoms are perceptible, except in her genitals. The labia are greatly enlarged, hard and thick. This was much plainer on the right one, which has reached the size of an orange covered with thick and hard papillary vegetations. Some vegetations have invaded the ostium vaginæ, which is nearly occluded, and have extended to the perineum. No pain is connected with this condition beyond the discomfort due to their presence. The papillary growths are hard, elastic, and moistened with secretion of nauseous odor. Their color is rose-red, and in many points they are whiter than the normal skin.

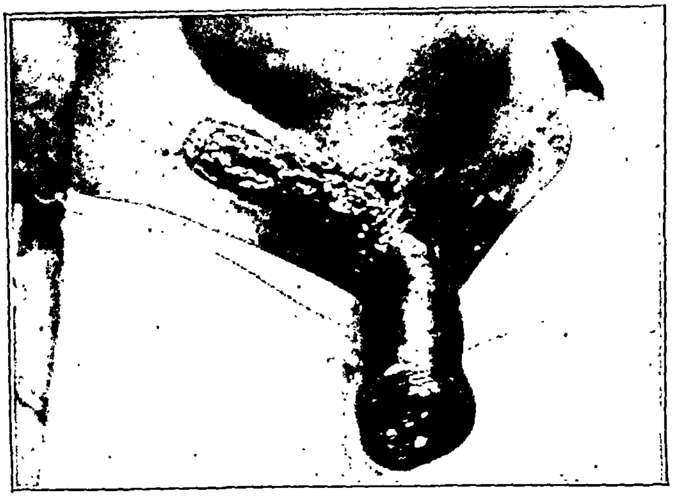

Fig. 3.—Elephantiasis of the penis.

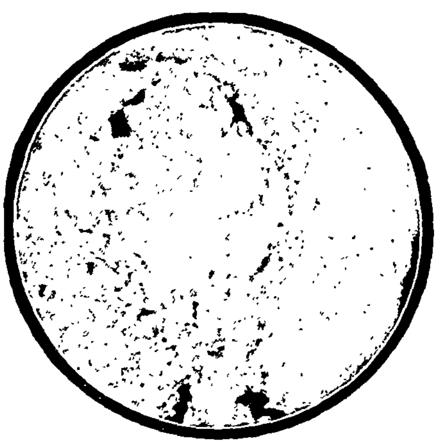

Fig. 4.—Hypertrophic papillæ transversely cut, with spirochetes.

Figure 3 shows a colored man, aged 28, who was infected for six years. He had elephantiasis of the penis. The skin and the connective tissues of the organ were thickened, hard and enormously swollen. The glans penis was converted into a mass of vegetations which protruded from a swollen and edematous prep

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[7] Allen, Charles W.: Syphilis of the Mucous Membranes, A System of Genito-Urinary Diseases (by P. A. Morrow), ii, 230

An ulceration from the radix of the penis extended to the whole right inguinal region. The ulcerated surface was covered with thick hard papillary proliferations of the size of a split pea or larger. They bled easily and overlapped the normal skin for over half an inch. The penis was amputated, the vegetations were scraped off and the surface burned with thermocautery. The wound of the penis healed up promptly, but the granulations came back in the same form.

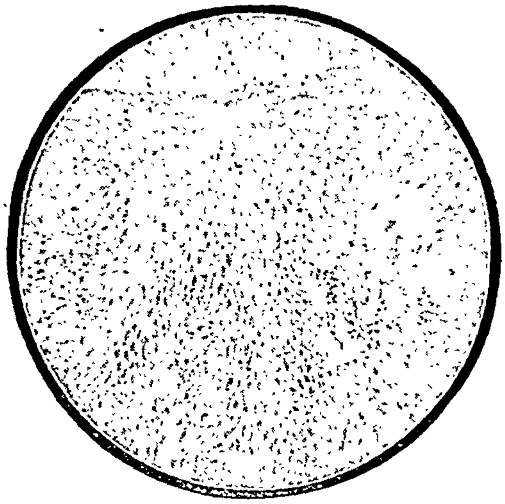
Fig. 5.—Epidermic layer of syphilitic proliferations.

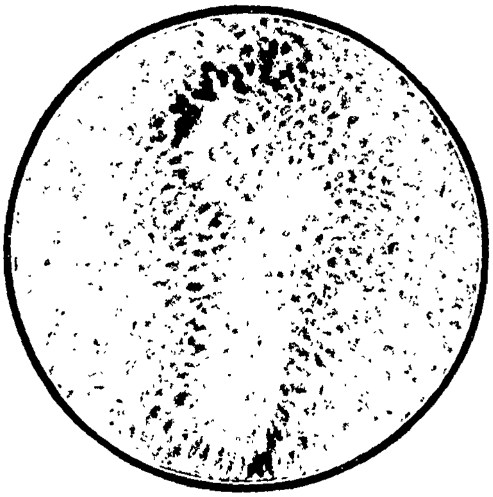
Fig. 6.—Epidermic cells disposed around the papillæ.

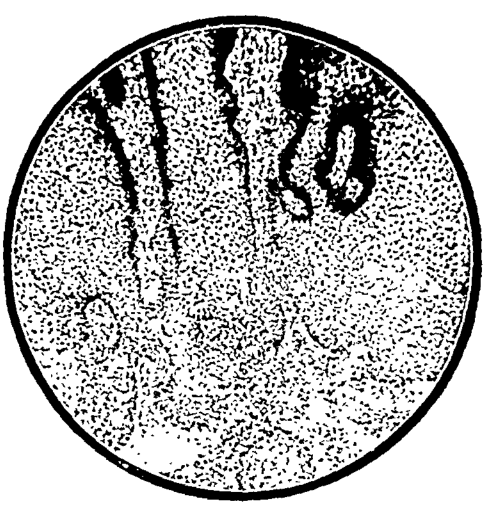
Fig. 7.—Hypertrophic papillæ in a mass of epidermic layer.

I have had occasion to see some forms of proliferating syphilis around the anus forming some obstacle to defecation in the form of a large cauliflower mass.

From each one of the cases I took a small part of the vegetations for biopsy. One little piece was treated with Levaditi stain for spirochetes. In the vegetating papules of secondary nature the spirochetes were found, as can be seen from the micrographs. In Figure 4 they are disposed around the enlarged papillæ in the form of small spirilla. In the interpapillary tissues the spirochetes are disposed longitudinally following the disposition of the connective fibers. In the vegetations of tertiary period in Cases 2 and 3 I was not able to see the presence of spirochetes.

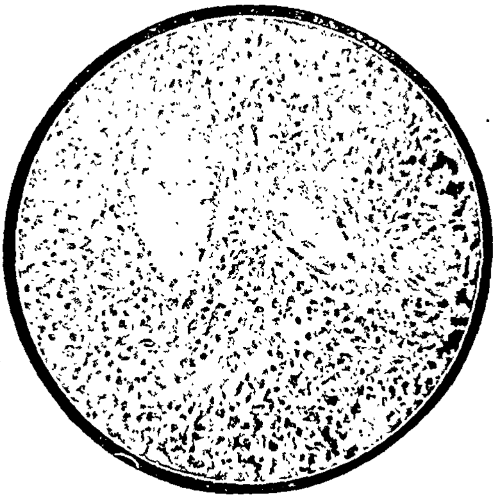
Fig. 8.—Enlarged papillæ with enlarged vein and artery.

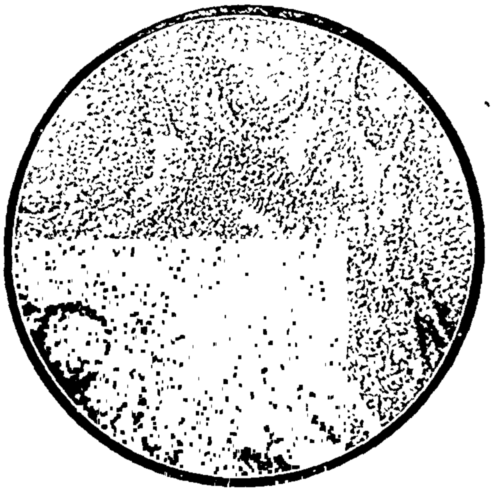
Fig. 9.—Papillary layer, infiltrated with hypertrophic papillæ.

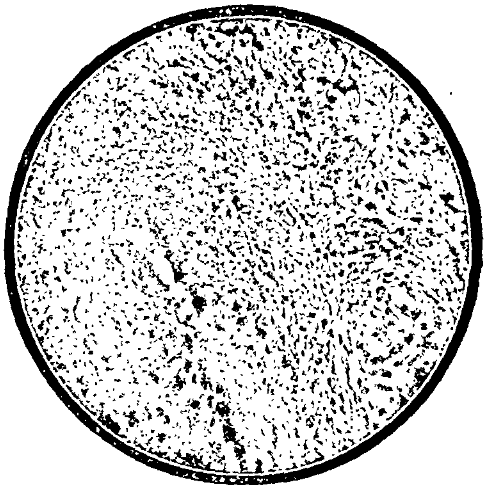
Fig. 10—Proliferating syphilid; plasma cells; hypertrophy of collagenous tissues; no elastic fibers.

The specimens treated with ordinary stains, such as hematoxylin and eosin or picric acid and hematoxylin, show an enormous hypertrophy of the epidermis. The stratum corneum is missing and is replaced by a mass of juicy epithelial cells with small nuclei, which do not take the stain. In Figure 5 gradually the epidermic cells begin to show that they are much larger, of triangular or cubical shape, with one or two nuclei well stained by hematoxylin, and between them are found abundant mitoses. These cells keep getting still larger and stronger and make an enormous mass of epithelial layer of the granular portion. When they reach the papillæ they appear fusiform, elongated and forming a columnar arrangement (Fig. 6.)

The papillæ are enlarged, elongated and protruding like sprouts in every direction in this mass of epidermic cells. In Figure 7 they are made up with connective tissue fibers, and enlarged connective tissue corpuscles; in some places a strong layer of plasma cells can be seen. The tissue forming the papillæ are infiltrated with white small cells. Figure 8 shows small inflammatory cells in enlarged connective tissues and an artery and a vein enlarged and filled with blood.

The papillary layer is greatly enlarged (Fig. 9) and infiltrated. The connective tissue fibers are hypertrophic and contain large blood vessels. It is very difficult to differentiate these specimens from those of tuberculosis verrucosa cutis.

The same condition is found in the deep layers of the derma; only the connective tissue fibers are much enlarged and hypertrophic. Specimens stained with orcein and then treated with hydrochloric acid have failed to show elastic fibers. It seems that the infiltrating process, pressing the elastic fibers, causes their disappearance. The same loss of elastic fibers I have found in keloid, in the elephantiasic tissues, in tuberculous tissues—in short, in all tissues in which thick infiltrating process has taken place. It seems that the delicate elastic fibers are soon damaged and disappear, leaving the collagenous tissues free to proliferate. (Fig. 10).

In all processes in which a constant irritation is maintained in the tissues of the papillæ proliferate and papillomatous vegetations are formed. The same tendency to proliferations is found in tuberculosis verrucosa, in several kinds of cancer, in blastomycotic lesions, in any process in which parasites, having taken abode in the tissues, mechanically with their presence and chemically with their toxins maintain a constant irritation. The presence of the treponema in the connective tissues of the derma maintains a constant irritation with a tendency to abundant exudation in the form of indurated edema. The collagenous tissues grow and form papillary growths. Indeed, as Virchow stated, every deviation of the nutrition of the tissues is the direct result of the exudation which enters between them. The tissues have the property of nutrition, and every cell has its own life, *vita propria.* This property of the cells of maintaining their own life was studied in the epithelium by Hertwig and Phol, and especially Legrand,[8] who found that infiltration cells in the imbibed tissues can not remain for a long time, but either they must undergo degeneration or they must divide and proliferate. This condition is well perceived in case of poisonous elements in the skin. In fact, in tuberculosis cutis there is seen a central area, the nearest to the poison, where the cells are degenerated, an intermediary one, where the cells are proliferating, and a peripheral one, more remote from the toxic influence, where normal cells are still found. In a general way it may be said that the deleterious action of the parasites on the tissues is produced by their poisonous secretions and also by their mechanical presence. In syphilis the treponema is not only a poison but a virus, which is reproduced in the organism, and keeps extending its deleterious action. It spreads in the system, remains latent for a while, and then finds new locations, where it produces its chronic lesions. The tissues affected with the treponema are infiltrated, and the infiltration undergoes necrosis and ulceration results, while the other cells are proliferating and form masses of papillary granulations. These connective elements are always produced by the existing tissues. The lack of elastic fibers is remarkable in the specimens, as is the immense growths of collagenous elements and of plasma cells. It seems that the elongation and enlargement of the vegetating papillæ represents a process of acanthosis. I have found the same deficiency of elastic fibers in the keloidal productions, and in this same process it seems that the lack of elastic fibers leaves the collagenous substance free to grow and to increase and form vegetations. The growth of epithelium occurring in these vegetating forms of syphilids takes the appearance of certain cancers, especially of the ulcus rodens. The epithelium is not capable of cornification and as a consequence undergoes a process of colliquation and a cicatrix can not be formed. Indeed in certain cases it is difficult to make the differential diagnosis of the proliferating syphilid from a papillomatous carcinoma. To the same condition can be referred the not infrequent occurrence of the carcinoma on syphilitic proliferating ulcers.

In fact the proliferating masses of the tertiary syphilitic ulcers show no special characteristics, and they have common characters with the proliferations of other morbid processes. The imbibition of the tissues from the lymph stasis, the hypernutrition of the connective tissue corpuscles, cause their division and their proliferation. The elastic fibers which maintain the connective tissues in their limits are gradually lost, and the collagenous elements are left free to proliferate without any restraint.

That the spirochete is the starting element of the irritation there is no doubt, as is clearly shown in the secondary vegetating patches. In the tertiary vegetating masses spirochetes were not found. This, however, does not diminish the value of the assertion that the presence of micro-organisms is the origin of proliferating granulations. It is possible that at this period the spirochete cannot be stained, or very likely it is concealed in the deep tissues, causing stasis of the lymph, ulceration, and the tissues so irritated start to granulate, and continue to granulate, but are unable to obtain a good solid epidermic layer to stop their growth.

In reference to treatment, it is not difficult to bring the proliferating patches of the secondary period to recovery. Internal constitutional treatment with external application of calomel, or bathing with solutions of 1 to 500 of bichlorid of mercury, are capable of producing involution of the vegetating plaques. In some cases it is necessary to use strong caustics, as in the case shown in Figure 1 it was necessary to scrape the whole vegetating surface with the sharp curette.

In the case shown in Figure 2 a reconstituent diet with tonics, decoction of Zittmann,[9] alternating with a saturated solution of iodid of potassium taken internally, has given satisfactory results. Local bathing with bichlorid solution 1 to 1,000 and a local application of emplastrum hydrargyri, have produced the involution of the granulations and a great diminution of the elephantiasic condition of the labium.

In the case represented by Figure 3 the penis was amputated and the proliferating surface was scraped off and burned with thermocautery. In spite of this treatment the proliferations recurred with annoying persistence. The applications of mercurial plasters irritated and did not produce any benefit. The application of resorcin in the form of a salve one drachm to one ounce of petroleum did some good. The cicatrix was obtained only after a few exposures to the *x*-ray. This produced a shrinking of the granulations, and the epithelium begun to be formed. The resulting cicatrix was somewhat bulky and of a keloidal appearance.

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ABSTRACT OF DISCUSSION

Dr. George Pernet, London, Eng.: I have long been of the opinion that these secondary vegetative proliferating conditions which are seen in syphilitic lesions, in tuberculosis, yaws and a variety of other conditions, are really due to staphylococcus infection. I have looked on them as epiphenomena, and really due to irritation within the derma. To accept this theory, one might have to reconstruct one's views, but that is the conclusion I have arrived at. In the treatment of these lesions, one of the best things I know of is the peroxid of hydrogen.

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[8] Legrand, L.: Cancer et milieu intérieur, Semaine méd., 1909, xx, ii.

[9] As this decoction is not official in the U. S. Pharmacopeia, and may not be familiar, the formula is here given as it appears in the National Standard Dispensatory:

Decoctum Zittmanni fortius: Take of sarsaparilla root, cut, 100 parts; digest in water 2,600 parts for 24 hours, and add, enclosed in a linen bag, powdered sugar and alum each 6 parts, calomel 4 parts, and cinnabar 1 part; then heat in a covered vessel placed in a steam-bath for 3 hours, stirring frequently, and near the end of the boiling add anise and fennel, bruised, each 4 parts, senna, cut, 24 parts and licorice root, cut, 12 parts. Express, strain, set aside for some time, and decant to obtain 2,500 parts of clear liquid; 2,500 gm. of this are to be divided into 8 parts.

Dr. A. Ravogli, *Cincinnati*: There is no question in my mind that the constant irritation is the cause of the proliferation of the connective tissues of the derma. It is possible, as Dr. Pernet has suggested, that the staphylococcus and the irritation from the different secretions will produce proliferations, but in the particular types that I have presented I am convinced that they are the result of the presence of the spirochetes and the mechanical irritation of the tissues in long-standing syphilitic processes. While any antiseptic, like peroxid of hydrogen, is of some value in the treatment of these lesions, their cure requires a remedy of more decided character, such as the *x*-ray or curettement, and also the actual cautery.

ANIMAL EXPERIMENTATION AND TUBERCULOSIS *

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ETIOLOGY

Everything that we know to-day of the etiology of tuberculosis, everything that has a direct bearing on the prevention and control of the disease, we owe to animal experimentation. Before the infectious nature of the tubercle became established by animal experimentation no advance was made in the knowledge of tuberculosis in any direction except in that of pathologic anatomy. From Sylvius,[1] who in 1695 first described tubercles and drew attention to their relation to pulmonary phthisis, up to the time of Klencke[2] in 1843, and even of Villemin[3] in 1865, who were the first to demonstrate by inoculation experiments on animals the infectious nature of the tubercle—that is, in a period of 170 years—no advance was made in the etiology of the disease, and this long period was wholly occupied by studies of the pathologic anatomy of tubercle, scrofula, caseation, pulmonary tuberculosis, and discussions of their relation to each other and their classification. Knowledge of the exciting causes of these pathologic processes remained theoretical; they were principally attributed to hereditary tendencies, perverted humors, and various types of inflammation.

Klencke,[2] in 1843, was the first to demonstrate the infectious nature of "tubercle" by inoculating rabbits in the vein of the neck with "tubercle cells" and producing general miliary tuberculosis in these animals. Klencke, however, hardly realized the importance of his own discovery, and little attention was paid to his work until, in 1865, Villemin,[3] by extensive and carefully controlled inoculation experiments on rabbits, confirmed Klencke's views and demonstrated beyond doubt the infectiousness of tubercle by reinoculation from animal to animal. He also obtained evidence of specificity, as control inoculations with other morbid material, such as cancer, pus, bits of pneumonic lung, etc., remained negative. He was as successful with material derived from the *Perlsucht* disease of cattle as with human tubercle, and thus pointed out the identity of the tuberculous process in man and animals. From his experiments he reached the conclusion that the tubercle itself had nothing specific in its histology, and that the disease must be due to a germ. Scrofula he considered sometimes tuberculous and at others non-tuberculous, as he could not always produce the disease in his experimental animals with scrofulous products.

Animal experiments were first used as a means of diagnosis by Marcet,[4] in 1867, who demonstrated the tuberculous nature of material from suspected cases of tuberculosis by producing with it generalized tuberculosis in guinea-pigs, and Edwin Klebs[5] demonstrated by animal inoculations in 1868 that the sputum of tuberculous patients contained an infective element which was capable of producing the disease in guinea-pigs. Damsche,[6] in 1882, used animal inoculations to make a diagnosis of urogenital tuberculosis.

While Klencke's and Villemin's results were accepted, the strife for many years continued over the interpretation of these results. Meanwhile, the positive proof as to the infectiousness of tuberculosis, obtained by subcutaneous inoculation in animals, was supplemented by evidence brought to light by inhalation and ingestion of tuberculous material. Schweninger,[7] in 1866, at first failed to infect dogs by inhalations of phthisical sputum, but later—1886—he succeeded; and Lippl,[8] in 1877, produced pulmonary tubercles in rabbits by insufflation of fluid sputum from man through a tracheal fistula. Tappeiner,[9] in a series of experiments which lasted from 1877 to 1888, demonstrated beyond doubt the infectiousness of phthisical sputum by inhalation experiments, his results being confirmed also by Bertheau[10] in 1880. Tappeiner, in 1880, had failed to infect rabbits by exposing them to the breath of coughing consumptives, and concluded that the infection must be conveyed, if at all, by dried sputum arising as dust, and not by the breath of the patient. The danger of this mode of infection received practical confirmation when his servant, whom he had warned to protect himself from inhaling the dust of the room in which the animals were confined, developed pulmonary tuberculosis and died of it. Giboux,[11] in 1882, however, succeeded in infecting rabbits by making consumptives cough in the boxes in which these animals were confined, and thus demonstrated, long before Flügge's classical experiments, the dangers of sprayed particles of sputum from phthisical patients.

Feeding experiments also added irrefutable evidence of the infectious nature of tuberculous material, as well as bringing many facts to support the hitherto unsuspected identity of the *Perlsucht* disease of cattle and human tubercle, by proving that both produced tuberculous disease in animals when taken into the stomach.

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* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Six of these pamphlets are now ready, taking up the questions of ethics, diagnosis, cancer, vaccination, etc. See advertising page 8, in this issue.

[1] Sylvius: Opera Med. Traj. ad Rhenum., 1695.

[2] Klencke: Untersuchungen und Erfahrung im Gebiete der Anatomie, Physiologie, Mikrologie und wissenschaftenlichen Medizin, Leipzig, 1843, i, Abschnitt 11: Mikropisch-pathologische Beobachtungen über die Natur des Kontagium, Paragraph 24. See also ii, Abschnitt 1, Par. 10.

[3] Villemin, J. A.: *Cause et nature de la tuberculose* (first memoir), 1865. Etudes sur la tuberculose, 1868.

[4] Marcet, William: The Inoculation of Animals as a Means of Diagnosis in Tuberculous Phthisis, Med.-chir. Tr., London, 1867, p. 437.

[5] Klebs, E.: Ueber Entstehung der Tuberkulose und ihre Verbreitung im Körper, Virchows Arch. f. path. Anat., 1868, xliv.

[6] Damsch: Die Impfbarkeit der Tuberkulose als diagnostiches Hülfsmittel bei Urogenitalerkrankungen, Deutsch. Arch. f. klin. Med., 1882, xxxi, 78 ff.

[7] Schweninger, E.: Ueber künstlicher Erzeugung der Tuberkulose, Gesammelte Arbeiten von Dr. E. Schweninger, Berlin, 1886, i, 242.

[8] Lippl: Amtl. Ber. d. 50. Versamml. deutsch. Naturforsch. u. Aerzte. 1877, p. 268.

[9] Tappeiner: Amtl. Ber. d. 50. Versamml. deutsch. Naturforsch. u. Aerzte, 1877, p. 269. Wien. med. Presse, 1877, No. 43.

[10] Bertheau, H.: Zur Lehre von der Inhalationstuberkulose, Deutsch. Arch. f. klin. Med., 1880, xxvi, 523.

[11] Giboux: Inoculabilité de la tuberculose par la respiration des phthisiques, Compt. rend. 1882, xciv, 1391. Centralbl. f. d. med. Wissensch., 1882, p. 716.

Chauveau,[12] in 1868, infected calves by feeding them bovine tuberculous masses, and Edwin Klebs,[13] in the same year, infected guinea-pigs by feeding them with the sputum of consumptives, and in 1870 by the ingestion of bovine tuberculous material, which led him to the conclusion that the *Perlsucht* disease of cattle and human tuberculosis were caused by the same virus. Gerlach,[14] in 1870, demonstrated the infectiousness of milk from tuberculous cows by ingestion experiments on animals, and concluded that such milk was dangerous for human beings. Chauveau,[15] in 1873, fed asses, horses, cattle, and 160 calves, with various kinds of tuberculous material for six weeks, and not a single animal escaped infection.

HISTOLOGY

Animal experimentation has also greatly advanced our knowledge of the histology of tubercle, and during the period from 1862 to 1882 the animal experimentation method was applied to its study, and many experiments were made to prove and disprove the specificity of tubercle from the histologic standpoint. In 1873 Virchow[16] considered giant cells a criterion of tuberculous tissue, and as late as 1880 had reached the erroneous conclusion that *Perlsucht* of cattle and human tuberculosis were not identical, and that bovine lesions should be classed with lymphosarcoma. The findings of pathologic anatomy, however, were reversed by animal experimentation when Heidenhain,[17] in 1872, and Weiss,[18] Rustizky[19] and Zielanko,[20] in 1875 to 1878, proved by experiment on animals that giant cells could be produced experimentally with powdered glass, muscle, bone, etc., and Cohnheim and Salomonsen,[21] in 1877, from evidence based on eye inoculations in rabbits, added irrefutable evidence to the view that *Perlsucht* and human tuberculosis are inoculable, and are caused by the same virus; and established transmissibility to susceptible animals as the true and only reliable criterion of the tuberculous nature of any pathologic lesions. By this criterion the unity of scrofulous and tuberculous disease in man and animals, so long opposed by Virchow, was established.

Thus animal experimentation demonstrated beyond doubt the infectiousness of tuberculous matter in man and cattle, the danger of tuberculous sputum and milk, and the identity of scrofulous disease and tuberculosis in man, as well as tuberculous disease in animals, by subcutaneous injection, by inhalation, and by ingestion experiments on animals, and established the value of animal inoculations in the diagnosis of suspected tuberculous disease (a method which gives evidence from which there is no appeal) before the birth of bacteriology and before the tubercle bacillus was discovered by Koch.

Koch's[22] epoch-marking paper on the etiology of tuberculosis, announcing his discovery of the tubercle bacillus as the direct cause of all tuberculous and scrofulous diseases in man and animals, appeared in 1882. The unbroken chain of evidence forged by Koch in his logical demonstration of proof was obtained entirely by carefully controlled animal experiments, and gave the world a discovery of incalculable importance to the human race. Koch confirmed Cohnheim's views as to *infectiveness being the best criterion of tuberculous disease*, and by animal experiments established the value of microscopic search for the bacillus in diagnosis, and the identity of many lesions hitherto looked on as due to different diseases on account of the marked differences they presented both clinically and in the pathologic findings. He proved that all contained the same bacillus, which, when cultivated outside of the body, produced by inoculation in animals typical tuberculous lesions. Miliary tuberculosis, fibrous phthisis, caseous pneumonia, as well as scrofulous disease of glands, bones, and lupus of the skin, also *Perlsucht* in cattle, he showed to be due to the same cause—the tubercle bacillus.

PROPHYLAXIS, DIAGNOSIS AND THERAPY

In 1890 Koch[23] demonstrated by careful animal experiments the diagnostic value of tuberculin, pointed out its specific action on the course of the disease and on tuberculous lesions, and proposed the tuberculin test as a practical and efficient method of eradicating tuberculosis from infected herds, and tuberculin injections as a therapeutic measure in the treatment of the disease in man. The discovery of tuberculin was entirely based on animal experimentation, and the value of this agent in the control of cattle tuberculosis, as an aid to early diagnosis of tuberculosis in man, and as a therapeutic agent in the more chronic types of the disease, can hardly be overestimated.

Animal experimentation has been of incalculable value in the diagnosis of obscure cases, and in teaching where the infectious material lurks and how to formulate effective measures for the prevention of the disease. By animal experiments the infectiousness of various secretions from the tuberculous was established. Edwin Klebs,[5] in 1868, proved the infectiousness of sputum; Gerlach,[13] in 1870, the danger to man from the ingestion of the milk of tuberculous cows. Cornet's[24] exhaustive animal experiments demonstrated the danger of dried sputum, and indicated one of the principal modes of infection to be by inhalation of dried particles of expectorated material contained in dust from rooms inhabited by consumptives. Flugge,[25] by animal experiments, proved the danger of droplet infection in the immediate neighborhood of the consumptive by the spraying of small particles of saliva in sputum in violent coughing. Animal inoculations of the dust of infected rooms have also been used to test the efficiency of the measures to guard against room infection. This was done by Hance,[26] at the Adirondack Cottage Sanitarium in 1895. The entire system of hygienic care of the sputum and other discharges has been built up on the results of animal inoculations.

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12. Chauveau, A.: De la transmission des maladies virulentes par l'ingestion des principes virulents dans les voies digestives, Gaz. de Paris, xlvii, 1868.

13. Klebs, E.: Beiträge zur Geschichte der Tuberkulose, Virchows Arch. f. path. Anat., 1868, xliv, 278. Zur Geschichte der Tuberkulose, Virchows Arch. f. path. Anat., 1870, xlix, 291.

14. Gerlach, A. C.: Ueber die Impfbarkeit der Tuberkulose und der Perlsucht bei Tieren, sowie über die Uebertragbarkeit der letzeren durch Fütterung, Virchows Arch. f. path. Anat., 1870, li, 297.

15. Chauveau, M.: Rec. de méd. vét., 1872, 1873. Cited by Johne, A.: Die Geschichte der Tuberkulose, Leipsic, 1883, p. 30.

16. Virchow, R.: Ueber die Perlsucht der Haustiere und deren Uebertragung durch die Nährung, Berl. klin. Wchnschr., 1880, Nos. 14 and 15. Die Uebertragbarkeit der Perlsucht durch die Nährung, Virchows Arch. f. path. Anat., 1880, lxxxii, 550.

17. Heidenhain: Ueber Verfettung fremder Körper, etc., Inaug. Diss., Breslau, 1872.

18. Weiss: Ueber der Bildung und Bedeutung der Riesenzellen, etc., Virchows Arch. f. path. Anat., lxviii, 67.

19. Rustizky, J. von: Untersuchungen über Knochenresorption und Riesenzellen, Virchows Arch. f. path. Anat., lix, 218.

20. Zielanko: Arch. f. mikr. Anat., cxi, No. 3, cited by Ziegler: Die Herkunft der Tuberkelelemente, 1875.

21. Cohnheim and Salomonsen: Sitzungsber. d. schles. Gesellsch. f. vaterl. Kultur, July 13, 1877.

22. Koch, R.: Die Aetiologie die Tuberkulose, Berl. klin. Wchnschr., 1882, No. 15.

23. Koch, R.: Deutsch. med. Wchnschr., Nov. 13, 1890, No. 46a; Oct. 22, 1891, No. 43.

24. Cornet, G.: Tuberkulose, Leipsic, 1890.

25. Flugge, G.: Ztschr. f. Hyg. u. Infektionskr., 1899, xxx, No. 1.

26. Hance, I. H.: Med. Rec., Dec. 28, 1895; Feb. 13, 1897.

Not only have animal experiments been used in demonstrating where the infectious material lurks, but, since the discovery of the tubercle bacillus, the same method has taught us the various channels by which the bacillus gains access to his host, and all that we already know of the mechanism of infection and the defensive resources of the living organism. To Cornet's[24] exhaustive animal experiments we owe much of our knowledge as to the sources of infection and the channels whereby the tubercle bacillus gains access to the living organism. Through his work on the channels of infection, he found that in most cases the pathologic evidence should furnish a clue to the site of invasion, but that tubercle bacilli are able to penetrate the macroscopically uninjured mucous membrane, and in rare cases even the skin, without leaving locally any evidence of their passage. This has been confirmed by many animal experiments in the recent exhaustive comparative studies of infection by inhalation and ingestion which have followed the world-wide discussion of the relative infectiousness of bovine and human tuberculosis.

Cornet[27] concluded that inhalation of infectious dust was the most frequent cause of infection, and that tuberculous infection progressed much more generally by the lymph stream than by the blood stream, and was rather a lymphogenous than a hematogenous infection.

Animal experimentation has taught us all we know of the complex, defensive mechanism by which the living organism resists the progress of bacterial infection and ultimately often heals the lesion and attains acquired immunity. Inspired by Pasteur's achievements in the field of acquired immunity, Daremberg,[28] Grancher, Martin,[29] Ledoux-Lebard,[30] Richet and Hericourt,[31] and others of the French school attempted (with, however, but indifferent success) the production of artificial immunization against tuberculosis in animals.

The treatment of tuberculosis by tuberculin, as originated by Koch[23] in 1890, was the first adaptation of the knowledge acquired by him in artificial immunization of animals to the treatment of tuberculosis in man. In America, Dixon,[32] in 1889, made experiments in this direction with attenuated bacilli; Trudeau,[33] in 1892, produced a marked degree of artificial immunity in rabbits with avian tubercule bacilli; and in 1893 de Schweinitz[34] obtained similar results in guinea-pigs by the use of bacilli of human origin attenuated by prolonged cultivation. In 1895 Theobald Smith,[35] by animal experiments, demonstrated the differences of virulence between human and bovine bacilli, and thus opened the way for further studies in cattle immunization. Pearson and Gilliland,[36] by animal experiments, were among the first in America to attain a high degree of immunity in cattle by the use of the human type of bacillus. In Europe, during the past decade, von Behring,[37] Koch,[38] Calmette[39] and their associates, by extensive animal experiments, demonstrated the possibility of producing immunity by preventive inoculations in cattle of living human cultures, and advanced our knowledge of this complex problem of such overwhelming importance in man's struggle against tuberculosis to a point which may lead to its ultimate conquest.

Far-reaching in the saving of human life as the new knowledge of tuberculosis is, it is difficult to define accurately what it has already accomplished, because it has so recently been acquired and has, owing to the vastness and complexity of the problem, been as yet so imperfectly applied to both prevention and treatment, and because the results offered by the falling death-rate are in this disease influenced by so many factors other than those which bear directly on preventive measures aimed solely at the specific infecting agent, the tubercle bacillus.

The death-rate from pulmonary tuberculosis has fallen steadily in most countries during the last forty years, notably in England, where a decrease of 50 per cent. has taken place in that time.[40] In many countries it has fallen only slightly faster since the discovery of the tubercle bacillus and the more or less complete adoption of preventive measures, while in others it has fallen much more rapidly since 1882, as in New York City, where there has been during the past twenty years a reduction in the death-rate from pulmonary tuberculosis of nearly 40 per cent.,[41] and notably in Prussia,[42] where the death-rate was 50 per cent. less in 1903 than in 1885. In some places, as in Boston, the death-rate during the twenty years preceding the discovery of the bacillus and the gradual adoption of preventive measures had shown no inclination to fall, while during the twenty years following this discovery it has fallen markedly and continuously. While it is true that the decrease in mortality began before any effective measures aimed directly at the infecting agent had been in force, the steady and continuous decrease in the death-rate makes it fair to assume that the brilliant results obtained have been due, in part at least, to the measures which aim directly at the limitation of the infection and the protection of the well from tuberculous dust.

In Boston[43] the death-rate, which in 1862 was 42 per 10,000 living, after slight variations, in 1882 was still about the same; but from 1882 to 1902 it fell from 42 to 21 per 10,000, so that during the past twenty-one years the diminution in the death-rate from tuberculous disease in Boston has been approximately 55 per cent., this decrease representing, in actual saving, 14,412 lives.

The demonstrable results in preventive measures aimed solely at the specific infecting agent would naturally be most noticed first in children, and the results in New York City, where such measures have been most strictly enforced, bring evidence in support of the influence of such measures on the death-rate of tuberculous meningitis and pulmonary tuberculosis in children. Dr. Biggs points out that "during the ten-year period ending 1902 there has been a decrease of more than 40 per cent. in the death-rate from pulmonary tuberculosis and tuberculous meningitis in children under 15 years of age in New York City, and that during a period of twenty years the decrease has considerably exceeded 50 per cent."[44]

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[27] Cornet: Tuberculosis, in Nothnagel's Practice, pp. 104-106.

[28] Daremberg, G.: Compt. rend. hebd. Soc. de biol., Dec. 30, 1893, v.

[29] Grancher et Martin: Congrès pour l étude de la Tuberculose, 1891, 1896.

[30] Ledoux-Lebard: Arch. de. méd. expér., 1898, No. 10.

[31] Richet et Hericourt: Etudes sur lá tuberculose, 1891, iii.

[32] Dixon, S. G.: Med. News, 1889, lv; Med. and Surg. Reporter, 1890, lxiii, 281.

[33] Trudeau, E. L.: Med. News, Sept. 3, 1892.

[34] De Schweinitz, E. A.: New York Med. Jour., March 23, 1893.

[35] Smith, Theobald: Tr. Assn. Am. Phys., 1896, p. 75; Jour. Exper. Med., 1898, iii, 451.

[36] Pearson and Gilliland: Philadelphia Med. Jour., Nov. 29, 1902, p. 842.

[37] Von Behring, E.: Beitr. z. exper. Therap., 1902, No. 5.

[38] Koch, R.: Schutz, Neufeld and Miessner: Ztschr. f. Hyg. u. Infectionskr., 1905, li.

[39] Calmette and Guérin: Compt. rend. de. l'Acad. d. Sc., 1906; Ann. de l'Inst. Pasteur, 1908, xxii, 689.

[40] Osler's Modern Medicine, iii, 145.

[41] Handbook on Prevention of Tuberculosis, Charity Organization Society, 1903, p. 165.

[42] Kayserling: Osler's Modern Medicine, iii, 144.

[43] Massachusetts State Committee International Congress, 1908, p. 119.

[44] Biggs: Arch. Pediat., May, 1904.

The results obtained, however, must depend greatly on the thoroughness and efficiency of the preventive measures adopted, and this perhaps has been best demonstrated thus far in the observations of Dr. R. W. Philip,[45] of Edinburgh. Dr. Philip, believing that partial measures were of little avail, and that effectiveness in preventive measures aimed at the control of the disease depended greatly on cooperation and coordination of all the agencies which tend to control the infection, gradually instituted a more and more comprehensive program in Edinburgh, in which all these agencies coöperated.

A study of the death-rate during the last twenty years in that city bears witness to the fact that the death-rate varies with the thoroughness with which the preventive program is carried out. The death-rate in Edinburgh was 19.5 per 10,000 in 1887. During the next ten years, when partial and uncorrelated measures were in force, it fell from 19.5 to 17, a percentage fall of 12.82; but during the following ten years, when a more comprehensive plan was adopted, it fell from 17 to 11 per 10,000, a percentage fall of 42.1 as compared with 12.82 during the preceding ten years, when a less efficient and comprehensive plan of prevention was in force.

Judging by what has been added to our knowledge of tuberculosis by animal experimentation in the past, it seems not unreasonable to entertain the hope that its ultimate control will be accomplished by knowledge acquired through the same means, and will probably depend not only on a more thorough and comprehensive application of the knowledge already won, on which all preventive measures are based, but also on the discovery of some specific method of immunization or treatment—a goal that can be attained only through continued and painstaking studies on animals.

NECESSITY OF ANIMAL EXPERIMENTATION FOR FURTHER ADVANCE

From the foregoing review of the history of tuberculosis, it would seem evident that everything that has a direct bearing on the prevention of tuberculosis, everything that has changed mankind's attitude toward it from one of apathy and hopelessness, when the infectious agent which produces tuberculosis was unknown and the disease was thought to be inherited and always fatal, to the growing hope of its ultimate conquest—a hope which has resulted in the great antituberculosis crusade spreading over the world and culminating in the late International Tuberculosis Congress in Washington—we owe to animal experimentation. If it were not for the knowledge which science has won by animal experimentation in the field of this disease in the last twenty-five years, we should still be plunged in the apathy of ignorance and despair toward it which formerly prevailed, and tuberculosis would still be exacting its pitiless toll, unheeded and unhindered. Were it not for animal experimentation, the prospect of ultimately lifting this great burden of suffering and death from the human race would be as dark as it was before Klencke, in 1843, and Villemin, in 1865, succeeded in proving its infectious nature by experiments on animals with tuberculous material, and thus paved the way for Koch's discovery, in 1882, of the tubercle bacillus. The many researches which have flowed from the study of this germ have taught us already how to protect the healthy from infection and are daily teaching us how we may restore to health those already infected.

Thanks to animal experimentation, we know to-day that tuberculosis is not inherited; that it is communicable and, therefore, preventable; and that in its earlier stages it is curable.

Animal experimentation has taught us already much as to the different types of the tubercle bacillus, its virulence, the poisons it produces, and the manner in which it invades the living organism and destroys it. Slowly but steadily animal experimentation is teaching us the avenues of infection whereby the germ gains access to the organs of its living host; what are the defensive resources of the living organism; and the delicate mechanism whereby it combats the poison of the germ, tries to localize the bacilli, to limit their spread, and ultimately to destroy them. Animal experimentation is teaching us daily more of the complex and delicate processes which bring about acquired and artificial immunity, and through which the living organism wins the victory over the invading parasite. In the thorough knowledge and further study of these vital processes by animal experimentation lie the hope of applying to the protection of healthy human beings and the cure of disease, the knowledge won by science in studying Nature's methods of cure through long years of tireless and painstaking observations on animals.

During my lifetime all this knowledge, so practical in its bearing on the saving of countless human lives, has been won by animal experimentation. In my own personal experience, and as a result of my own observations, animal experimentation has led me to conclusions which have had a practical application in the treatment of my patients. In 1886 I was able to demonstrate on animals the influence of a favorable environment on the disease. Inoculated rabbits placed under the most unfavorable conditions attainable, so far as light, air, food, exercise and surroundings were concerned, succumbed to the inoculation, while those turned out in the open air on an island and supplied with abundant food recovered, with only traces of the disease at the site of inoculation. These observations on animals increased my confidence in the influence of a favorable environment on the course of tuberculosis in man, and confirmed my faith in the value of the sanitarium and open-air method, of which I was then trying to make a practical application in the establishment of the Adirondack Cottage Sanitarium. The open-air and sanitarium treatment has already saved and prolonged, and will continue to save and prolong, countless human lives.

In 1893 animal experimentation gave me indubitable evidence that the production of artificial immunity against tuberculosis, which has always been looked on as impossible, was not as unattainable as was generally believed, my vaccinated rabbits and guinea-pigs showing increased resistance not present in the untreated animals; and this strengthened my faith in the value of continuing the study and use of vaccines in the treatment of tuberculosis. Although the progress made in this direction has been slow, the results obtained by many experimenters in many lands have been in accord as to the hopefulness of this line of research; the goal has almost been reached already in the vaccination of cattle through the experiments of Koch, von Behring, Calmette, McFaydean, Heymans, Pearson, and others; and the application of vaccines to the treatment of various infections in the human subject is extending and giving encouraging results.

The conquest of tuberculosis in man and animals, like the conquest of smallpox, of diphtheria, of rabies, anthrax, and many other infections through the produc-

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45. Philip, R. W.: Lecture before International Congress, 1908.

bottle will make possibly one cry and then go on with the bottle until the needle is withdrawn. Older children make more trouble, but with a piece of chocolate or a cracker that is easily obviated. I had feared that this method would tend to cut down the attendance at the dispensary, but instead it has increased. The same thing is true in private practice. If a child is very ill and in urgent need of the treatment, the parents usually will readily submit. I saw one case of chorea, the patient was 9 years of age, in which the condition rapidly cleared up. In pneumonia when the patients were extremely cyanotic and in very bad condition this form of treatment has been beneficial and I have not lost a case in which it was used. In eczema some remarkable cures have been observed, but in other cases of eczema I have seen no result whatever.

EXPERIMENTAL SURGERY OF THE THORACIC AORTA BY THE METHOD OF MELTZER AND AUER *

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In operations on the thoracic aorta, it is necessary to use a method by which the pleural cavities can be opened without danger. I did not employ the classical apparatus, as they are too complicated and do not permit pulmonary ventilation, except by spontaneous respiratory movements of the subject. They would probably give unsatisfactory results in operations in which, the thorax being widely opened, the diaphragm and ribs can hardly act on the lungs. Therefore, I have used a simpler and a more efficient method, the method of Meltzer and Auer,[1] in which the respiratory exchanges take place even when the lungs are completely motionless.

The principle of this method was discovered a short ago by Meltzer and Auer. They demonstrated that ventilating the lungs with a continuous current of respiration takes place in an almost normal manner, even in the absence of respiratory movements. Meltzer and Auer introduced a small-sized catheter into the trachea of a dog which had been curarized. The catheter was inserted as far as the bifurcation of the bronchi. Then they passed through it a continuous current of air under low pressure. The air ventilated the lungs and escaped immediately to the exterior through the trachea. The thorax was opened and both the lungs were seen moderately distended and absolutely motionless. The animals could be kept in this condition for three or four hours and even longer. Some time ago Dr. Meltzer showed me his method and suggested its application to surgery. I immediately tried it in a few simple experiments, such as the resection of a pulmonary lobe, the extirpation of a segment of the middle part of the esophagus, followed by a circular suture, the dissection of the mediastinum by opening the two pleuræ and the pericardium, and resection of a small part of the superior vena cava and its replacement by a piece of a jugular vein. The animals recovered completely, with the exception of one that died of pleurisy a few days after the operation.

Then I began some studies on the surgery of the thoracic aorta. The object of the first series of experiments was chiefly to find a suitable technic for performing plastic operations on the large vessels of the thorax without interrupting the circulation.

The experiments were performed on dogs of small and medium size. The animals were anesthetized with ether. Then a rubber catheter was introduced into the trachea as far as the bifurcation of the bronchi. Before the thorax was opened the catheter was connected with the tube of a foot-bellows which gave a continuous current of air under low pressure. A manometer and a bottle of ether were fastened to the tube. When the pleuræ were opened, the lungs were allowed to collapse a little. Then they were kept moderately inflated by a continuous current of air. If the incision involved one side of the thorax only, the respiratory movements continued. But when the chest was opened by a semicircular anterior incision, the sternum cut and the thorax dislocated by strong retraction, the lungs remained unmoved. Nevertheless, the respiration continued in spite of the absence of respiratory movements and the gaseous exchanges of the blood remained almost normal.

Six animals were operated on. In three experiments, the upper part of the descending aorta was cut transversely. A few attempts were made to tube the vessel, on account of which the circulation was interrupted several times for a number of minutes. The ends of the aorta were then united by a circular suture, and during this time the circulation was interrupted from three to six and one-half minutes. The three animals recovered without incident.

In the fourth experiment the ascending part of the aorta was cut longitudinally about 3 cm. above the heart and sutured. This operation involved two interruptions of the circulation, each lasting about thirty seconds. The animal remained in good health.

The fifth experiment consisted in severing the ascending aorta in the middle and in interposing between its ends a segment of a large jugular vein, preserved in cold storage. The circulation was interrupted for seventeen minutes. The animal remained in excellent health, but the hind legs became contractured, the animal walking as if it had wooden legs. The contracture decreased progressively. Nevertheless, at the present time, six weeks after the operation, the legs are still a little stiff.

I then performed a sixth experiment with temporary tubing of the aorta in order to avoid medullary complications. The upper part of the descending aorta was laid open by a longitudinal incision, and a paraffined tube was inserted into its lumen and temporarily fastened. This small operation involved only a short interruption of the circulation. The circulation was immediately re-established, and it was possible to extirpate at leisure the anterior wall of the part of the aorta that had been tubed and to substitute for it a segment of vena cava preserved in cold storage. This operation lasted twenty-four minutes. The tube was then taken out through a small incision of the wall of the aorta and normal circulation was re-established. The animal recovered from the operation without incident. It died suddenly of hemorrhage twelve days after the operation. The accident was due to a fault of technic in preserving the vein in cold storage.

These experiments prove that operations on the thoracic aorta need not be dangerous, and by Meltzer's method they are as simple as abdominal operations.

The suture of the descending aorta is almost identical in technic with the suture of other arteries. On account of the size of the vessel and the thickness of its wall, however, the operation is easier. It is possible to use needle No. 12 and china silk No. 1. Only two retaining stitches are necessary. When the temporary hemostasis is good, the anastomosis can be performed in three minutes. The ascending aorta is very friable, and the

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* From the Laboratories of The Rockefeller Institute for Medical Research, New York.

[1] Meltzer and Auer: Jour. Exper. Med., 1909, xi, 622.

technic should, therefore, be modified. The thread tears the wall very easily. It is necessary to use U-shaped stitches like those of Jaboulay, although this kind of suture does not give a strong scar if the operation is very aseptic. This inconvenience could be avoided by a reinforcing continuous suture. The immediate results of the anastomoses and of transplantations are excellent. There is no reason to think that the ultimate results would be less satisfactory than those of the operations on the abdominal aorta, which are perfect even after several years.

The problem of operating on the aorta without interrupting the circulation presents several different solutions. In a case of sacciform aneurism, it would be possible to extirpate the sac and to close up the opening without interrupting the circulation, in performing the operation which I described some years ago as longitudinal exclusion. But if it is necessary to resect a large part of the wall or even a whole segment of the aorta, the problem is more difficult. Two other methods are theoretically possible: definitive or temporary lateral derivation and the temporary tubing. I have not yet attempted on the aorta the lateral derivation of the blood. But I have implanted a vein, preserved in cold storage, on the right auricle, in order to establish a collateral substitute for the superior vena cava. The operation was not very difficult. Unfortunately, the animal died of pleurisy two days later. The inconvenience of these methods is their complication. Temporary tubing is much simpler and more rapid. It permits of performing the operation as slowly as necessary, since the circulation goes on through the tube. I do not mean to imply that it is an ideal method, but it renders possible long and difficult plastic operations on the thoracic aorta.

DILATATION OF STRICTURE OF THE MALE URETHRA

WITH SPECIAL REFERENCE TO THE AUTHOR'S IRRIGATING TUNNELED AND GROOVED AND STANDARD SOUNDS *

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A stricture may be defined as an obstruction or closure, partial or absolute, of the lumen of any passage in the body. Thus, as familiar examples, the term "stricture" is applied to obstructions of the nose, throat, intestines and the urinary passages.

Among the commonest strictures are those of the male urethra, because trauma is not infrequent and infections of the urethral mucosa, especially gonorrhea, are common diseases. These always leave behind them, at one or more points of the mucous membrane, damage of sufficient degree and depth to cause the formation of scar-tissue, which, by the process of contracture or shriveling, leads to more or less closure of the canal. This narrowing progresses steadily for the worse as the years go by, in the vast majority of patients.

In a mill-stream the closure of a dam causes a backset or up-stream pressure of water along the main channel and all its tributaries in regular order. When the spillway is reached by the level of water a balance of backpressure and overflow is established, and thus a certain degree of relief is afforded. So in the urinary system, a urethral stricture by more or less closure checks the freedom of the passage of urine and causes back-pressure on the urethra, bladder, ureters and kidneys, in regular ascent from one to the other. The higher the dam in the stream and the tighter the closure of the stricture in the urethra, the more far-reaching and greater the changes in the mill-stream and the urinary apparatus, as the case may be.

Such are the "hydraulics" of stricture and are purely mechanical and truly physical effects of stricture on the balance of the urinary system—a poise which for lifelong health thereof should never be disturbed. This is, moreover, exactly the reason why stricture is the most dangerous result of gonorrhea, whose degree and progressiveness are all too little appreciated by the average practitioner.

In selecting the method of treatment of stricture of the urethra, early diagnosis of incipient obstruction is the first step. By this statement is meant the dogma that no victim of injury or infection of the urethra should be discharged as "cured" without gentle, complete examination of the urethra for infiltrations or thickenings which are the starting-points or foundations of stricture. About a month after all other treatment of a gonorrhea, for example, has ceased, and presumably all the inflammation ended and doubtless the limit of Nature's own absorption of the infiltrations established, gentle dilatation of these points may be begun and continued until they disappear either fully or reasonably within the boundaries of all mucous membrane recovery. Unless they are fully resolved or absorbed, examination and perhaps treatment of them are indicated at fixed intervals, which may be determined only in each case as a law to itself. To attempt treatment of such infiltrations earlier than after a month of rest is usually to invite stricture-formation by mechanical irritation, and may be regarded as premature and incompetent interference with what may prove curable by Nature's own processes.

The foregoing method of curing urethral infections and traumatisms may be called prophylaxis and prevention of the many types of stricture which may later, and perhaps repeatedly, require radical and dangerous operations for permanent relief or for maintenance in a condition of even comparative safety for the patient.

The purpose of this monograph is to discuss dilatation of stricture of the urethra. Strictures vary so greatly, however, in character and behavior that no one method will be alone wise or efficient for all forms and manifestations of the disease. A very cogent resumé of the whole question of the treatment of stricture is given by White and Martin,[1] whom I quote below. The bracketed portions at the end of each paragraph are my own comments, and, it is trusted, will be accepted as offered with due deference.

SUMMARY OF TREATMENT

"1. Gradual dilatation is indicated as the treatment of choice in all recent, soft, or dilatable strictures found in any part of the urethra, without regard to the caliber of such strictures." [The key-term here is "recent stricture." If intervention with newly formed infiltrations is begun too soon they will be stimulated to form a traumatic stricture whose character will vary according to the nature, frequency and violence of the treatment and the reaction of the patient's tissues in such cases.]

"2. Continuous dilatation is indicated in uncomplicated strictures which are so tight that no instrument larger than a filiform can be made to pass. This continuous dilatation is prac-

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] White and Martin: Genitourinary and Venereal Diseases, ed. 8, pp. 255-256.

ticed till a small metal instrument can be introduced—No. 12 to No. 16 [French scale]. Then the normal caliber of the urethra is restored by gradual dilatation or by cutting, in accordance with the nature of the clinical behavior of the stricture." [To carry a tight stricture which accepts at first a filiform up to 12 to 16 F. by continuous dilatation might in many cases result in infection of the bladder. In my experience one or two filiforms will dilate the stricture to 7, 8 or 9 F., after which tunneled and grooved sounds may be employed. Uncomplicated strictures are, of course, understood as alone concerned in these statements.]

"3. Internal urethrotomy is indicated in all fibrous, irritable, and resilient strictures anterior to the bulbomembranous juncture. Narrowings at or near the meatus should be treated by the knife whenever it is apparent that they are responsible for definite symptoms. The division is here made on the floor of the urethra. All other anterior strictures are divided along the roof." [Before internal urethrotomy is ever attempted, except in emergencies, a bacteriologic examination should be made of pus present. If vicious germs are present local treatment should be attempted for their destruction before any operation whatever is practicable.]

"4. External perineal urethrotomy is indicated in all fibrous, resilient, or irritable strictures situated behind the bulbomembranous juncture." [The best or one of the greatest indications for external urethrotomy is the presence of pus which would be benefited by the drainage of this operation. The same comment is warranted with regard to the following paragraph.]

"5. Combined internal and external urethrotomy is indicated in the treatment of anterior strictures which are unusually dense or nodular and which are complicated by fistulas."

"6. Perineal section, or external perineal urethrotomy without a guide, is indicated in the treatment of impassable stricture of the deep urethra. When the proximal urethral end cannot be found, suprapubic cystotomy and retrograde catheterization are justifiable."

"7. Excision is indicated in cases of impermeable stricture, nodular or fibroid, where there has been complete destruction of mucous membrane. When so much tissue is removed that it is impossible to bring the divided urethral ends in apposition, transplantation of mucous membrane is indicated." [The majority of strictures are inflammatory. The end result of any excision operation must in greater or lesser degree be an annular traumatic stricture which, probably without a single exception, is the most intractable form of stricture, therefore the application of excision is deservedly a question of the gravest possible doubt.]

"Formulating the operative indications in accordance with the clinical features of the stricture, the following summary of treatment is given:

"1. Narrowings at or near the meatus, if treated at all, are always cut.

"2. Strictures of large caliber (greater than 15 F.) are treated by gradual dilatation. Cutting is almost never required when such a stricture is in the deep urethra; it is sometimes necessary when the stricture is anterior to the bulbomembranous juncture.

"3. Strictures of small caliber are treated by gradual dilatation if possible; when in the deep urethra they often require external urethrotomy; when anterior to the bulbomembranous juncture they usually require internal urethrotomy.

"4. Impermeable strictures are treated by perineal section, followed at times by excision and mucous membrane grafting.

"5. Soft, recent, uncomplicated strictures are always dilated.

"6. Fibrous, nodular, irritable, strictures complicated by urinary fever, fistula, etc., are always cut."

The logical points of the subject of treatment of stricture by dilatation might be designated as the questions of diagnosis, armamentarium, preliminary treatment, actual treatment, and after-treatment.

DIAGNOSIS

Diagnosis is almost synonymous with selection of the case as available for dilatation. It rests on minute history, strict examination and careful observation. All these are essential before the systematic and progressive dilatation may be begun. The matter of diagnosis may be immediately dismissed on the ground that it is sufficiently covered by the foregoing quotation from White and Martin and my parethentical comments.

ARMAMENTARIUM

The instruments ordinarily required for the dilatation of stricture are filiform whalebone guides; tunneled and grooved silver catheters; tunneled and grooved metallic sounds; soft, flexible lead-core, cone-pointed or olive-pointed, silk or lisle-thread bougies; standard metallic urethral sounds, and assorted, flexible, rubber, silk or lisle-thread catheters.

One great danger of all strictures of the male urethra is that of reflex minor and brief, or major and prolonged anuria. In my careful observation of patients under the dilatation treatment of stricture, a very reliable and rational means of preventing reflex renal inhibition is to provide a reflex vesical action at the end of each treatment by filling the bladder with a blood-warm antiseptic solution. This "artificial urine" the patient voids before leaving the office, the evacuation thus quieting possible mental apprehension by permitting him to perceive the normal action of his bladder and also thus irrigating antiseptically his bladder and urethra under Nature's own pressure and process, and finally soothing the invaded portions of the urinary tract in a degree and manner which almost always forestall balking of the kidneys, with its consequent danger of even minor anuria. In passing, it may be noted that quinin, gr. 5, with fluid extract of aconite, minims 3, and morphin sulphate, gr. 1/4, for sthenic patients; and quinin, gr. 5, nitroglycerin, gr. 1/50, and codein, gr. 1, for asthenic patients, are admirable combinations for internal administration with the purpose of preventing reflex complications.

In order to produce the physiologic effect of an acting bladder on the kidneys, at the end of each treatment I have, in years gone by, always used the tunneled and grooved silver or the standard catheter, not only to evacuate the bladder as a preliminary to dilatation in selected cases, but also to provide, as a termination of treatment in all cases, artificial urine in the form of warm antiseptic solution just described.

Thus it will be noted that all cases have suffered at least double invasion of the urethra and bladder—once by the dilating instrument and once by the irrigating instrument. Predominant over all other considerations are the strict asepsis of the bladder and urethra and the prevention of reflex renal inhibition. Hence, this plan of procedure is justified, both as preventive and curative.

The doctrine is well established, however, that the less actively, less violently and less frequently the genito-urinary apparatus is invaded within the limits of reasonable indications of treatment the safer for the constitution as a whole and the better for the urogenital tract focally in the stricture and generally as a physiologic unit in the system.

Activity of treatment is indicated by the character and conditions of each case in itself, and is a matter for the judgment and experience of each individual specialist or surgeon to determine.

Violence of invasion is likewise subject to judgment and experience, and is also a factor of choice between soft flexible instruments and rigid metallic instruments. The soft flexible lead-core cone-pointed or olive-pointed woven-silk or lisle-thread bougies have largely met the objections to soft instruments set forth by Lydston[2] in the following words:

> Soft bougies and catheters are not so easily managed as stiff metallic instruments, as their flexibility permits them to bend on themselves when they come in contact with a tight stricture. It is difficult, however, to produce injury with them, and, inasmuch as instruments should be coaxed rather than forced through a stricture, their function in the treatment of strictures of small caliber is of great importance.

Skill, gentleness, patience and persistence largely or even totally, in my opinion, give rigid instruments preference over flexible instruments, except in extensive, tortuous strictures. In this particular type of stricture steel instruments produce not only centrifugal dilatation, but also axial traction. Both these effects combined are usually more severe than the delicate urethral and periurethral structures will tolerate; therefore, inflammation and aggravation, rather than alleviation and absorption, usually follow the use of steel instruments in extensive tortuous obstructions. The lead-core dilators provide centrifugal dilatation but avoid axial traction in the hands of experts by accommodating themselves to the irregularities of direction of the urethra due to the tortuosities and extent of this type of stricture.

Nevertheless, the fact remains true to-day as when stated originally by Van Buren and Keyes[3] in 1874:

> In trained hands, however, the steel sound is perfectly safe; it is smoother than any soft instrument, and certainly can be passed into the urethra with less pain than can any other instrument, and is capable of effecting more dilatation, in the same length of time, with the employment of less force.

To this may be added the fact that steel instruments, being smoother, are much more aseptic than the best varnished instruments, and consequently in the long run are the better type of instrument to use.

Frequency of dilatation implies not only actual recurrence of visits to the operator, but also the number of times the obstruction is passed during each treatment. In order to reduce to a single passage of one instrument both irrigation and dilatation, I was led to devise my irrigating tunneled and grooved sounds and my irrigating standard sounds, recently described and illustrated in the *Annals of Surgery.*[4]

By the use of these instruments the armamentarium for the dilatation treatment of stricture is reduced to whalebone filiform guides and a set of my sounds.

PRELIMINARY TREATMENT OF STRICTURE

The preparation of the patient is the next detail for consideration. Rigid asepsis and antisepsis comprise not only proper sterilization of all instruments used and due cleansing of the penis and urethra, but also the establishment of the highest possible germicidal state of the urine. Except, therefore, in totally closed strictures, which require immediate intervention (which does not necessarily mean cutting operation), the visit at which the minute examination and accurate diagnosis of the stricture, so far as possible, are made, should be followed by a few days' course of urinary antiseptics before the actual and repeated dilatation begins. These drugs should always be continued during the treatment in order to minimize the danger of infection. The most effective combination I know is from 5 to 10 grains each of benzoate of soda and hexamethylenamin three times a day in a glassful of hot water two hours after eating.

One very important detail undoubtedly practiced, but rarely mentioned in preliminary treatment by authors, is care of and relief from the pus-organisms and chronic urethritis whenever possible, before the dilatation begins. Many strictures which are permeable to urine may remain undilated for a short time in order to remove as much infectious material as possible, provided always and, of course, there are no symptoms of urgency or indications for immediate intervention.

Irritability and congestion of many strictures may be greatly reduced by hot sitting or general body baths before each treatment. A few minims of fluid extract of aconite are very serviceable for the same purpose by internal administration.

G. Frank Lydston[5] states:

> The preliminary administration of anodynes, the continuous use of nerve sedatives and antispasmodics, and, if necessary, anesthetics, are frequently useful adjuncts to treatment by dilatation.

In the experience of most genitourinary specialists, the belladonna group (more especially hyoscyamus) is the most serviceable and reliable anodyne sedative and antispasmodic. The tincture may be given in doses of from 10 to 30 drops, three times a day, combined with the antiseptics previously mentioned.

A stricture which requires a general anesthetic is in no sense suited for the dilatation method of treatment. Therefore, only local anesthetics are probably considered in the foregoing quotation. I have obtained the best results with eucain, 2 to 4 per cent., and alypin, 2 to 4 per cent., solutions. There is a point, however, against the promiscuous use of even local anesthetics which will be elucidated later in this paper. It concerns, in brief, the likelihood of misleading the operator.

ACTUAL TREATMENT OF STRICTURE

The actual treatment must concern the two broad types of the lesion—the open or large-caliber and the tight or small-caliber stricture. From the standpoint of facility of instrumentation itself, an open stricture may be regarded as one which accepts a 20 F. sound in the hands of an ordinary practitioner or an 18 F. sound in the management of the skilled and experienced specialist.

It probably was noted that the foregoing quotation from White and Martin in the early part of this paper described size 15 F. as an open stricture. It might be said in this connection that a stricture smaller than 18 F. is rather inclined to be on the border-line between complicated and uncomplicated manifestations. It is doubtless, therefore, better judgment to make the distinction on a broader basis and take the limits 18 and 20 F. as specified. Such a rule for the general practitioner is vastly safer than any other.

Dilatation of the open type of stricture at the rate of one or two numbers of the French scale at each sitting, combined with all the foregoing precautions, is, comparatively speaking, a simple matter. It is rendered still more simple and safe and likewise more agreeable to the patient by the use of the standard irrigating sounds of my pattern, precisely for the reason of comfort afforded by the minimum of instrumentation and by the final function of the bladder at the end of each visit.

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[2] Lydston, G. Frank, in Bangs and Hardaway: American Text-Book of Genitourinary Diseases, Syphilis and Diseases of the Skin, 1899, p. 176.

[3] Van Buren and Keyes: Genitourinary Diseases with Syphilis, 1874, p. 113.

[4] Pedersen, V. C.: Ann. Surg., October, 1909.

[5] In Bangs and Hardaway: American Text-Book of Genitourinary Diseases, p. 178.

Strictures which are of smaller caliber than 20 or 18 F. usually are combined with atrophy of the urethra in front and dilatation with hypertrophy or atrophy behind, so as to render the passage of whalebone filiform guides of supreme and final importance, and a manipulation of no small delicacy. In passing, it must be noted that only genuine whalebone guides are safe. Rubber guides are treacherous and hazardous. Either through age or disease whalebone finally dries, splinters or splits. Consequently no filiform should be applied without first careful inspection, because if the filiform breaks within the bladder immediately a serious operation is necessary. I have already reported a case of fragmented filiform removed from the urethra without operation.[6]

The passage of the filiform must be accomplished with gentleness and precision, and without irritation, pain or bleeding, as far as possible. Gentleness and precision of insertion of the whalebone guide rest with the personal equipment of the operator in terms of his skill, delicacy, patience and experience. Irritation, pain and bleeding are avoided or reduced by instilling local anesthetics, as previously mentioned, or preferably and advisedly by instilling local hemostatics, of which none is more reliable or satisfactory than 1 in 1,000 adrenalin chlorid solution. In this solution eucain or alypin may be dissolved. The patient holds this medication in the urethra five minutes. As previously implied, the use of local anesthetics is frequently inadvisable, and may be avoided by gentleness and deliberation. Otherwise the patient's sensation is abolished, and the operator, therefore, loses one of the best guides as to the degree of dilatation being accomplished and perhaps the degree of traumatism caused.

A urethroscope passed to the face of the stricture is often the means of finding and passing the lumen. Otherwise a number of whalebones are variously and differently bent at their tips and passed into the urethra in turn. Each filiform, after failure to pass, is left *in situ* until the urethra is reasonably filled with them. After every three or four have been inserted without passing the obstruction, each filiform of the whole number within the urethra is again tried in succession until, by mutual guidance and support, finally one enters the lumen of the stricture and its tip is passed into the bladder. All the other filiforms are then cautiously removed from the urethra.

I prefer filiforms two feet long. The half-length is coiled within the cavity of the bladder, and next nine inches are within the urethra and the remaining three inches outside the penis. Thus it is possible always to prove the freedom of motion of the filiform within the tunnel of the sound. This is, indeed, a most important detail, because at all times the operator must be sure that the sound, as it progresses through the stricture, is not buckling or folding the filiform on itself as it is advanced forward. In the original description[4] of my special sounds it was noted that the tunnels for all the sizes are identical in diameter and length. The object of this design was to provide a uniform "feel" or sensation to the operator as to this matter of freedom of the filiform within the tunnel of the sound.

I determine the freedom of the filiform in two ways, more or less interchangeable at will. First, as the sound is advanced by a true and actual "coaxing" through the urethra, every moment or two the filiform is pulled out by perhaps an inch or less. If it moves freely, the next advance by "coaxing" is accomplished. If the filiform does not move freely, the sound is retired by the amount of the last advance, the filiform again tested, and if it moves without resistance the advance of the sound is renewed and continued, step by step, until the stricture is fully passed. The second method of proving the freedom of the filiform within the tunnel is to hold the free end of the filiform fixed in the left hand and to advance the sound steadily over it. If any feeling of binding or resistance is perceived, the advance of the sound stops and then the first method of passing along the filiform is applied. Frequently, however, the sound will advance so easily that only the second or less troublesome test of the "play" of the filiform within the tunnel will be required.

Occasionally the difficulty of passing a filiform is so great that the wisdom of a temporary continuous dilatation is indicated. By this term is meant that one or two whalebone guides are left in the urethra and bladder, passing through the stricture, for several days. During this time they gradually swell, and gently induce, both by swelling and by mechanical presence, an opening of the stricture. After this has occurred, almost always instrumental dilatation may be begun and continued.

It may be noted that I have not mentioned woven filiform guides. This has been because, like other woven instruments, they are in ordinary experience and probability not as easily sterilizable as the whalebone guides. They also not infrequently possess the disadvantage of too great flexibility. This was set forth admirably by Gouley[7] as follows:

> Though the soft bougies of Leroy answer well in many cases, I have often verified the fact that the instrument coiled in front of the stricture, and sometimes doubled itself so that the point appeared at the meatus when it was believed to have passed into the bladder; these very common failures are due to the too great flexibility, and to the want of spring of such bougies. For these reasons I have, for many years, used in their stead slender probe-pointed shafts of whalebone . . . which possess great advantages over both the French and English capillary gum bougies, being more elastic than either of the latter, and less liable to coil in the urethra, while they adapt themselves admirably to the inflections of the canal, and can be made so small as to enter the narrowest constrictions.

As a rule, at the first treatment all strictures which are suitable for dilatation at all may be enlarged by two or three numbers from size 7 F., which is the size of the smallest sound of my pattern for irrigation and dilatation considered advisable and safe on the ground stated in the original description.[5] A stricture which will not take 7 F. usually demands treatment other than dilatation.

Thus, when the patient leaves the office the urethra has been brought up to 9 or 10 F. caliber.

The question might be asked why the size 7 F. is taken. The grounds are two: First, Maisonneuve probably had had large experience with stricture of urethra before devising his urethrotome. The guide of this instrument is size 7 F., apparently because this diameter is about as small as may wisely be employed in a rigid instrument from the standpoints of injury to the urethra and of stability of the guide for passing the knife. Second, strictures smaller than 7 F. are almost invariably complicated in varying degrees and manners; particularly common is chronic infection of the urethra with dilatation and hypertrophy or dilatation and atrophy of the bladder-side of the lesion. Any and all these conditions are benefited by the drainage of an open operation. Thus it will be seen that selection of the size 7 F. is warranted by clinical observation and judgment, and does not rest on merely arbitrary opinion.

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[6] Pedersen, V. C.: Med. Rec., New York, Nov. 20, 1909.

[7] Gouley: Diseases of the Urinary Organs, 1873, p. 51.

The efficiency and prolongation of each dilatation are increased by leaving the sounds *in situ* five or ten minutes. This fact is analogous to that taught by gynecologists, namely, that slow dilatation of the cervix uteri is more lasting than rapid. Such dicta hardly need discussion or argument.

Either in open or close strictures, as previously defined, when the proper degree and duration of a given enlargement are accomplished, the obturator of the sound is withdrawn and the bladder treated according to indications, namely, evacuated and irrigated until as clean as may be, and finally filled with the antiseptic solution, the artificial urine previously described. The sound, carrying the filiform with it, is now withdrawn and the patient allowed to rest a few moments and thereafter to empty his bladder.

Instead of withdrawing the filiform with the sound, the filiform may be left *in situ* in order to maintain the dilatation and to avoid the difficulties and dangers of passing it again at the next visit, provided there has been great difficulty in so doing at the initial session.

The application of these sounds to dilatation of stricture has been made by myself and my associate, Dr. Walter B. Brouner, for more than a year,[8] with unbroken success and unquestioned satisfaction. Patients on whose intelligence reliance may be placed, who have had non-irrigating dilators applied by the hands of others and of myself and then have had my irrigating sounds passed, state that there is no comparison between the two as to comfort at the end of the treatment. These statements by patients hold true no matter whether the tunneled grooved irrigating or standard irrigating sounds are employed. For this reason at the present time I employ no other form of sound than the irrigating type, and rarely enter the bladder without providing the patient with antiseptic fluid as an artificial urine as the last step of treatment.

AFTER-TREATMENT OF STRICTURE

Careful inquiry among patients coming from general practitioners elicits the fact that the after-treatment of stricture is more or less neglected. It comprises two steps, the after-treatment of active instrumentation and the later prevention of relapses of the strictures. During active treatment the patient should always have a few moments' rest in the office, and should be told to observe between treatments sexual rest as far as possible and urinary rest by the avoidance of alcohol, condiments and adherence to proper, that is, simple diet.

Urinary antiseptics are wisely administered for at least the first twenty-four hours after each dilatation. Antispasmodics are best provided for by the free drinking of water, light diet and abstinence from sexual intercourse and alcohol. Mental reassurance of the patient is very necessary, as to the facts that there will necessarily be a little pain on urination, occasionally a little discomfort during erection, and sometimes a little discharge for the first day or more after instrumentation. The patient should know that all these things are normal results of the mechanical treatment, are unavoidable and not matters of concern.

As to the terminal after-treatment, that is, the avoidance of recurrence of the stricture, a patient with stricture should be taught that, since the stricture is fundamentally only a scar, it cannot ordinarily be literally removed from the passageway; only its power of obstruction is corrected. He should know, therefore, that, like all other scars, strictures with age and time tend to dry or harden and shrivel or contract and thus to reclose or reobstruct the urethra. When he understands that this is the law of all scar-tissue, and therefore the law of stricture, he will be only too ready to report once or twice a year for observation, and, if necessary, correction of any slight relapse present.

Attention to these details and the employment of the irrigation method of dilating the strictures as embodied in these sounds will, I am convinced, render the management of stricture-cases far more felicitous. If one might utter an epigram to sum up the dilatation treatment of stricture for the general practitioner and general surgeon, it would be in the majority of cases: Maximum results, minimum interference.

Note.—In addition to the authorities already cited, the following, which were consulted in the preparation of this article, may be found of interest by the reader:

Lett: Practitioner, 1908, lxxx, 45.
Watson: Boston Med. and Surg. Jour., 1907, clvii, 549.
Desnos and Minet: Traité des maladies des voies urinaires, Paris, 1909.
Tevass: Med. Press and Circular, 1881, xxxi, 27.
Englisch: Wien. Klinik, 1887, pp. 121-216.

45 West Ninth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JUDD, BARTLETT* AND PEDERSEN

Dr. Lincoln Davis, Boston: I have been especially interested in tumors of the bladder and in the transperitoneal operation advocated by Dr. Judd. My experience has been limited to three cases, but I have been very favorably impressed with the advantages of this method in the way of giving accessibility to the field of operation, and allowing a thorough and complete removal of the tumor. The operation is especially indicated in cases of broad-based tumors, or where there is infiltration of the bladder wall, or in cases of simple papillomata, where it is difficult to reach the tumor through the ordinary suprapubic incision on account of a thick abdominal wall. In two of the cases in which I went into the peritoneal cavity I made the ordinary suprapubic incision, but found it impossible to reach the tumor, which was very sessile. By enlarging the incision and making an opening into the peritoneal cavity, and packing off the intestine, it was an easy matter to split the posterior wall of the bladder and bring the tumor within reach. After opening the peritoneal cavity and posterior bladder wall I feel safer if a drainage tube comes out through the suprapubic space extraperitoneally. I do not think that it prolongs convalescence to any extent, and it is much safer. I do not believe that this operation is necessary in all cases of papilloma, but I do think it is especially indicated where there is any evidence of malignant disease. As to its dangers, I suppose that there is a slight increased danger, but I do not believe it to be very great. Preliminary cystoscopic examination is of the greatest importance in the case of tumors of the bladder. One can determine accurately the number of growths present, their size and position, and usually one can make a pretty shrewd guess as to the nature of the growth. I think it is very important to go over the whole surface of the bladder because a growth which is very apparent to the cystoscope, a villous growth floating in the fluid medium, may collapse and lie against the wall of the bladder, so that it is difficult to find it after the bladder is opened. In this country the tendency seems to be toward more radical operations for tumors of the bladder, as is evidenced in the work of the Rochester clinic. In Germany and in France they use the operating cystoscope more than we do. Of course, in the hands of Nitze, wonderful results have been achieved with the operating cystoscope, and clinicians are returning to that method with the idea that there is less liability to recurrence. I think that the data gathered during the next few years will be very interesting, showing which method will give the best results.

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[8] The shop drawings for these sounds bear the following dates: Beniqué curve irrigating sound, March 15, 1907; standard curve irrigating sound, March 29, 1907; short curve irrigating sound, Dec. 21, 1907; tunneled and grooved irrigating sound, Jan. 27; 1908.

* The papers of Drs. Judd and Bartlett appeared last week.

Dr. William E. Lower, Cleveland: To secure early diagnosis of tumors of the bladder, it will be necessary to continue to do more missionary work among the general practitioners, and teach them that all cases of hematuria must be investigated, because in a large percentage of cases the bleeding is caused by some form of tumor of the bladder. It is important to determine the location and the attachment of the tumor. Of course, this can only be done by cystoscopic examination. Then a sufficient exposure of the field of operation by way of the peritoneum, if necessary, but outside of the peritoneum, if possible. There is no doubt that in cases with infection there is increased danger in going through the peritoneum, not in the skilled hands of the expert clinician, but in the hands of the occasional operator. The patient should be placed in an exaggerated Trendelenburg position. Hemorrhage must be controlled, and the wound in the bladder closed immediately. I insist that it is important that the bladder be closed immediately after operation, no drainage to be inserted, and no retention catheter to be introduced. In the majority of cases there is no leakage, and if a few drops of urine escape, no harm is done. The patients are up and about in a week or ten days, and the results, as a rule, are extremely satisfactory. I do not believe that it is possible to operate on all patients with malignant tumors. What does Dr. Judd do in unquestionably malignant tumors if he cannot do a radical operation?

Dr. Stephen H. Watts, Charlottesville, Va.: In connection with stricture of the urethra, I wish to direct attention to the value of resection in very extensive, almost impermeable cases. My attention was called to this by two cases that have recently come under my care, very extensive strictures, accompanied by fistulous openings in the perineum. Several openings were situated in the scrotum at the junction with the penis. I went into the perineum and divided the scrotum into two parts, turning the testicles out on either side. In that way I obtained a good exposure of the entire urethra up to the penoscrotal junction. I excised the stricture, took away all scar tissue possible to get good tissue approximation. You do not have to loosen up the ends of the urethra to any great extent, but it is surprising how easily you can free the urethra and how readily the ends come together. In one of my cases I excised an inch and a half and in another case an inch and a quarter, the ends coming together with little tension. The approximation was made over a rubber catheter in the urethra. Both patients did beautifully. I want to emphasize the importance of excising these extensive strictures and bringing the ends together. I believe that this is not done often enough. I saw one patient who had been operated on four times, and you can readily imagine the condition of the perineal urethra. It was nothing but a mass of scar tissue. In this case I could not have done anything else. I would like to have this procedure more universally adopted.

Dr. J. Block, Kansas City, Mo.: I was very much delighted with all the papers and particularly with Dr. Judd's, dealing with the removal of vesical tumors by the transperitoneal route. Of course, every case becomes practically a law unto itself. We ought to determine the size and location of these growths, especially in the case of a small tumor. If there is only one tumor the intravesical removal is relatively easy. As was stated before, the Nitze operating cystoscope, in the hands of a competent man, will accomplish all that is desired without a major operation, but I can very readily see that in the case of a very large tumor, especially when situated at the base, broadly attached, it will be necessary to select a more accessible route, and that is where the transperitoneal operation has its place. I was somewhat astonished a short time ago to read a report of three or four such cases in which an operation was done by a prominent operator, and where after reading the description of the operation one could readily perceive that the same work could have been done by the suprapubic method without incurring a possible risk of infecting the peritoneum.

Dr. Pedersen's paper is of unusual interest, especially since he includes every form of stricture, but I was surprised that he did not lay more stress on the feasibility and appropriateness of treating all strictures, except the most resilient, by dilatation. You can accomplish as much by dilatation as by a cutting operation, and inasmuch as no form of treatment is an absolute guarantee against the recurrence of the coarctation, the easier method would seem the best to adopt. Like Dr. Watts, I prefer excision. I have excised strictures where it was necessary to divide the scrotum to get access to the part, for the reason that the stricture was situated near the triangular ligament. Several times, in boys not over 10 or 12 years old, suffering from traumatic stricture, as much as half an inch was removed and excellent results were obtained by simply coapting the freshened proximal and distal ends of the tube with sux catgut stitches and allowing a Nélaton catheter to remain in place to serve as a splint.

Dr. John H. Gibbon, Philadelphia: I first saw this operation Dr. Bartlett describes performed by Dr. Richard H. Harte, of Philadelphia, six or eight years ago. Up to that time I did not know that it was possible to excise the hydrocele sac without rupture. I have done it on one occasion since then, but the Doyen operation is so much simpler and gives such good results that I usually employ it. There is no doubt that the operation which he describes is the perfection of the excision operation.

Dr. F. C. Valentine, New York City: Posner, in speaking of the so-called impermeable stricture, defined it as an evidence of the physician's inaptitude and the patient's lack of patience. He holds, and my experience has confirmed his view, that there is no such thing as an impermeable stricture. With patience, and if the patient will submit, I have found that all strictures are permeable to at least the smaller filiform bougies. A permeable stricture was defined by the essayist as one admitting a 20 French in the hands of the general practitioner, and an 18 in the hands of the specialist. With a lumen of that size, the patient can always empty his bladder, and therefore the principal danger of that class of stricture, that of an ascending vesical infection, is most unlikely. If I understood Dr. Pedersen correctly, he considers the whalebone sounds safe, as compared with woven filiform bougies. I cannot agree with him, for the very reason that the whalebone bougie is likely to splinter, and yet there are cases in which it is useful. He also said that a 7 French is the smallest stricture that would admit of dilatation, and therefore one would have to resort to other remedial measures, alluding, of course, to urethrotomy. In this, again, experience leads me to differ. For the treatment of apparently intransitable stricture I would start from the proposition that if conditions do not permit traversing the urethra, suprapubic puncture twice or even three times daily will give the needed immediate relief. Within a day or two, a fine filiform can usually be coaxed through the urethra. This accomplished, the way to effective dilatation is prepared. Of course, with an infected bladder, under the circumstances now being considered, cystotomy is imperatively required. When, however, dilatation, which the author so ably advocates, is feasible, the cardinal objects of treatment—reestablishment of free normal vesical evacuation, restoration of the urethra's suppleness, and a normal mucosa—are best attained.

Dr. E. S. Judd, Rochester, Minn: With reference to the point which Dr. Davis made, that he felt safer in making suprapubic drainage,—while we have drained in some cases, it has always been in cases in which we interfered with the prostatic urethra; otherwise we prefer not to drain.

I class these cases with resection of the intestine or gastroenterostomy. There is here no more reason for draining than there is in those operations. The convalescence is shortened considerably if one is able to close up the bladder.

As to the difficulties in complete removal of the bladder, we have not as yet satisfactorily removed the entire bladder, and conservative operations in cases where the growth is too extensive for removal have not been satisfactory. We have removed the small growths with the cystoscope, but it has been in unsatisfactory cases and had showed the greatest number of recurrences. My point in this paper is that in most cases of tumor of the bladder the growth is situated at the base, a part of the bladder that cannot be reached easily through a suprapubic incision. If the tumor is in one of the upper quadrants, we prefer to remove it through a suprapubic incision.

Dr. V. C. Pedersen: With regard to incision of the urethra, I intended to lay down the general rule that no other method should be adopted until dilatation has been given a fair trial. It has always seemed to me that excision of the urethra, substituted for an inflammatory condition, a traumatic condition, and every one knows that the most intractable of all strictures to treat are the traumatic ones, consequently I have never found a stricture which to my best judgement required excision.

With regard to Dr. Valentine's proper criticism, in an abbreviated paper one can hardly do the subject of stricture justice. He has assumed that I did not say that some strictures are so tight as to require the retention of a filiform bougie for two or three days, whereas the limit I stated, namely 7 French, applied only to the initial application of tunneled sounds in a closed stricture. A 15 French sound is a little too small for the average case unless a guide is also used. Dr. Valentine stated that the acme of cure is the restoration of the mucosa to its normal condition. I do not believe that that is possible in the preponderating majority of cases of stricture because strictures proceed from destroyed mucous membrane which cannot be restored. Stricture is sometimes periurethral scar tissue which cannot be removed but only dilated or stretched so as to obviate the obstruction. The cutting operation must be followed up by the passage of sounds and only recently I saw a case in point that had been operated on a number of times ineffectually simply because no bougies were passed afterward.

A COMPARATIVE STUDY OF DIGALEN

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Among those drugs which act as direct stimulants to the heart's action none have been found which are able to replace the preparations of *Digitalis purpurea.* It has long been clearly recognized, however, that digitalis medication is complicated by a number of undesirable secondary effects. Briefly, these are its accumulative action, its tendency to produce disorders of appetite and digestion, and, finally, its irritant action, which interferes with its use by the hypodermic method. These untoward effects are so marked at times as to prevent the use of the drug; they always make great caution necessary in the administration in order that dangerous toxic effects may not follow.

The use of digitalis is further complicated by the fact that its therapeutic effects often do not appear until about the second day after medication is started, a drawback which makes it of practically no value in cases of acute heart failure. In certain cases the effect fails to appear even after several days, while in others the first indication that the drug has been absorbed is the appearance of symptoms of poisoning. These latter disagreeable features of the drug's action are usually ascribed to differences in the reaction of the patient, but it seems equally or even more probable that they are often due to variations in the potency of the drug used, the preparation being in one case much weaker, in another much more active than the normal.

Many attempts have been made from time to time to secure a digitalis preparation without these various undesirable qualities. Unfortunately, however, these efforts have not resulted in much success, although a large number of special formulas have been used in preparing the crude drug for therapeutic use. In this connection, the so-called pure principles of digitalis have been suggested as offering a solution of the problem. These, however, although possessing the desirable effects of the crude drug are by no means free from its undesirable secondary effects. Of these digitoxin, the glucosid which occurs in the greatest amount in digitalis leaves, is by far the most potent. The use of digitoxin in therapeutics is made practically impossible, however, by its excessively irritant action, its tendency to produce disorders of digestion, its marked accumulative action, and, less important, its insolubility in water, which makes its administration difficult excepting in tablet form. In 1904, however, Cloetta[1] announced that as a result of several years' labor he had been able to isolate a digitoxin from digitalis leaves which was almost entirely devoid of these drawbacks. This new digitoxin (for sale under the trade name digalen) from a physical standpoint differed from the crystalline product of Schmiedeburg and Kiliani in being amorphous and in being much more soluble in water. From the therapeutic standpoint, according to Cloetta, it differed even more widely, being easily absorbed, the digitalis effect appearing within twenty-four hours, being without accumulative or toxic action and being so free from irritant qualities as to make it suitable for subcutaneous, intramuscular or intravenous injection. Moreover, being a definite chemical substance, it afforded a preparation entirely devoid of the variability so often present in the crude drug.

Aside from Cloetta's own investigation, the only work done regarding the identity of digalen with crystalline digitoxin was carried out by Kiliani,[2] who has done far more work on the chemistry of digitalis than any other investigator. He was unable to accept Cloetta's view, but rather pointed out that the formula given by Cloetta[3] for digalen does not correspond to that for the crystalline substance, the former having a formula of $C_{14}H_{23}O_5$ with a molecular weight of 287, the latter of $C_{34}H_{54}O_{11}$, a molecular weight of 638. Kiliani concludes that digalen is only a high percentage of digitalein.

Clinical results would seem to indicate that Cloetta and a number of the clinicians who reported invariably good effects from digalen were in error (or based their conclusions on an inadequate number of cases) regarding the superiority of amorphous digitoxin over the older preparations of digitalis. A review of the literature (Reitter,[4] Vlach,[5] Frankel,[6] Mueller[7]) shows that digalen is not devoid of cumulative action; that it possesses marked irritating properties, so irritant as to make subcutaneous injection practically impossible, causing edema and pain, lasting in some cases for two and three days and often causing great pain when given intramuscularly, or if given intravenously causing in some cases edema and thrombosis (Kottmann,[8] Hochheim,[9] Liverato,[10] Veiel,[11] Teichmann[12]); that it causes disturbances of digestion apparently as often as the older galenicals, with loss of appetite, nausea and vomiting (Eichhorst,[13] Veiel,[11] Teichman,[12] Mueller[7]), and that its effects do not appear more rapidly than from corresponding doses

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1. Cloetta: München. med. Wchnschr., 1904, li, 1466-1468.
2. Kiliani: München. med. Wchnschr., 1907, liv, 886, 1112; Ber. d. deutsch. chem. Gesellsch., 1907, xl, 2996.
3. For Cloetta's reply to this criticism see München. med. Wchnschr., 1907, liv, 987.
4. Reitter: Wien. med. Wchnschr., 1905, lv, 2245.
5. Vlach: Prag. med. Wchnschr., 1906, xxxi, 43.
6. Frankel: Arch. f. exper. Path. u. Pharmakol., 1907, lvii. 123.
7. Mueller: München. med. Wchnschr., 1909, lvi, 904.
8. Kottmann: Ztschr. f. klin. Med., 1905, lvi, 128.
9. Hochheim: Zentralbl. f. inn. med., 1905, xx, 545.
10. Liverato: Cron. d. clin. med. di Genova, 1905, xi, 276.
11. Veiel: München. med. Wchnschr., 1906, liii, 2140.
12. Teichmann: Therap. d. Gegenw., 1907, xlviii, 199.
13. Eichhorst: Deutsch. med. Wchnschr., 1905, xxxi, 49.

(based on the manufacturer's claim that 0.3 mg. amorphous digitoxin (Cloetta) = 0.150 gm. folia digitalis) of the older preparation. Mueller,[7] in a series of 18 cases, observed effects from doses of 6 c.c. of digalen on the second day, namely, increased amounts of urine or a decrease in heart rate. From doses of 5 c.c. the effect appeared first on the second and third day, doses of from 3 to 4 c.c. on the third to the fifth day, and from doses of 2.25 c.c. the action appeared on the fourth to the fifth day. From doses of 400 mg. of folia digitalis (in terms of digalen 2.66 c.c.) the effect appeared on the second day; 300 mg. of the leaves (equal to 2 c.c. digalen) produced effects on the third day, and Mueller remarks that these effects were not only more constant, but were also more powerful than from digalen. To facilitate comparison, these results are summarized in the following table.

TABLE 1

Time of onset of the therapeutic effects of digalen and folia digitalis with corresponding doses (doses of folia digitalis based on the manufacturers' claim that 1 c.c. digalen = 150 mg. of the leaves).

Doses in c.c. per day..	6	5	4	3	2.66	2.25	2
Day effects from digalen appeared	2	2-3	3-5	3-5	....	4-5	..
Day effects from folia dig. appeared	..	..	..	..	2	....	3

Walti[14] and Teichmann[12] also were unable to observe effects in the cases reported by them until the second or third day, and Frankel,[15] from observations of the pulse and amplitude, reports that a digitalis action is manifest after 0.3 gm. doses[16] of digitalis leaves as follows:

Patient.	Effects, Hours.	Patient.	Effects, Hours.
1	22	5	25
2	20	6	23
3	17	7	23
4	24	8	24

Regarding the claim that digalen is an efficient remedy in acute heart failure, von Ketly[17] reported that the effects did not appear more quickly when given subcutaneously than by the mouth. Kottmann[8] reported, however, that if digalen was given intravenously in large doses, 5 to 15 c.c. (amounts which were necessary to produce a distinct digitalis action) the action appeared in from two to five minutes. The danger of this method of exhibition makes such a use very questionable, however, as Teichmann[12] observed edema and thrombosis and, in one case, after a dose of 4 c.c., general tonic-clonic convulsions.

It seems rather strange that digalen has been accorded so much attention at the hands of the clinician in view of these reports and that so few experiments have been carried out on animals. A few investigations have been carried out, however, and these have tended to show that digalen had a true digitalis action—a result entirely in accord with Kiliani's report, however, that digalen was only an impure digitalein—the latter glucosid also having the same effect as digitoxin on the heart, excepting that it is manifested to a lesser degree. It seems doubly strange on account of Kiliani's denial of the chemical identity of this new digitoxin with the older crystalline substance that comparative studies were not made along the lines used in the biologic standardization of the digitalis series. Neave,[19] apparently the only investigator to make such a study, reported from his experiments on frogs and rabbits that, although digalen has the characteristic action, it is very much less active than a like amount of crystallized digitoxin, 1.2 mg. amorphous digitoxin (Cloetta) causing a rise in blood-pressure of only 14 per cent.—a slowing in rate of 2 per cent. as compared with a rise in pressure of 21.9 per cent., a slowing in rate of 14.7 per cent. from 0.5 mg. crystalline digitoxin.

Owing to the claims of the advertising literature which ignores these various reports, and in view of the statement of Kottmann and others that digalen equaled crystalline digitoxin in activity, as it should if chemically identical with it, a series of experiments were undertaken at this laboratory to determine biologically the relation of its activity to that of digitalein and crystalline digitoxin.

The most accurate method of determining the therapeutic value of digitalis preparations is biologic rather than chemical. Of the various biologic methods, that of using the typical action of digitalis on the frog's heart as a final reaction is more commonly used than all other methods, but determinations of the rise in blood-pressure of the minimum lethal dose for mammals have also been used as tests for the activity of the preparations under question. The method adopted at this laboratory for general use is a frog-heart method. The frogs, *Rana pipiens*, are carefully weighed and the dose estimated in terms of grams of body weight of the animal. The drug is injected into the anterior lymph-sac and at the end of an hour the animal is pithed, the heart is exposed and its condition noted. The heart should have just stopped beating and should be in firm systolic contraction. If the dose has been too small to bring this about, larger amounts are given until the desired results are obtained; if too large, the dose is reduced. Five different samples of digalen[20] were examined according to this method. These were all obtained in the open market, but one had been in stock at this laboratory for about two years and two others for about three years; the remaining two (Samples 4 and 5) were obtained during the summer. The appearance of the various samples was very much the same, although the older preparations appeared somewhat more tinged with yellow. One sample, however, that of 1905, had evidently undergone some marked chemical change since it contained a considerable amount of a dark brown granular substance,[21] a precipitate not present in any of the other samples.

These various samples were tested for their effect on the frog's heart in the manner described above and gave the results shown in Table 2.

From the summary it will be noted that the several samples of digalen varied in value from about 0.02 to over 0.04, the older preparations generally testing weaker than those of more recent manufacture, thus indicating deterioration with age, despite the claim that digalen is a stable preparation of digitalis.

In order to compare the value of these samples of digalen with digitoxin and digitalein, experiments were carried out on frogs, using the same experimental procedure as nearly as possible. The results, using Merck's crystalline digitoxin and Merck's digitalein, are as shown in Table 3.

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[14] Walti: Deutsch. Aerzte- Ztg., 1904, p. 461.

[15] Frankel, A.: Arch. f. exper. Path. u. *Pharm.*, 1907, lvii, 131.

[16] It is to be noted that this amount of leaves corresponds to 2 c.c. digalen, which produces its first effect about the fourth to fifth day, according to Mueller.

[17] Von Ketly: Therap. Monatsh., 1906, xx, 272.

[19] Neave: Scot. Med. and Surg. Jour., 1907, xx, 390.

[20] Through the courtesy of the manufacturers the dates of manufacture for the several samples were obtained, viz., No. 1, 1905; No. 2, 1906; No. 3, 1907; Nos. 4 and 5, 1908.

[21] I am indebted to Mr. M. I. Wilbert for this sample and for the statement that when the precipitate first formed it was nearly white and that it had become dark on standing. It is also to be noted *that in no instance* had these samples been opened, so that this change came about as a result of natural causes and was not a deterioration due to opening the bottle, etc.

TABLE 2

Determination of the systolic stoppage of the heart of *Rana pipiens* in one hour. Drug injected into abdominal lymph-sac. The doses are given in milligrams per gram of body weight.

Number of Frogs Used.	Dose Mg.	Result.
DIGALEN NO. 1		
1	0.020	..
1	0.030	..
1	0.035	..
1	0.035	..
1	0.040	+ (?) Diastole.
DIGALEN NO. 2		
1	0.020	..
1	0.025	..
1	0.030	..
1	0.030	+
1	0.035	+
DIGALEN NO. 3		
1	0.020	..
1	0.025	..
1	0.030	..
1	0.035	+
1	0.040	+
DIGALEN NO. 4		
1	0.020	..
1	0.020	..
1	0.025	..
1	0.025	+
1	0.027	..
1	0.030	+
DIGALEN NO. 5		
1	0.010	..
1	0.015	..
1	0.020	.. (?) Diastole.
1	0.022	+ Systole.
1	0.025	+
1	0.030	+

Summary.	Minimum Lethal Dose. Mg.
Digalen No. 1	0.040 (?)
Digalen No. 2	0.030
Digalen No. 3	0.035
Digalen No. 4	0.027
Digalen No. 5	0.022

TABLE 3

Determination of the systolic stoppage of the heart of *Rana pipiens* in one hour. Drug injected into the abdominal lymph sac. The doses are given in milligrams per gram of body weight.

Number of Animals Used.	Dose Mg.	Result.
DIGITOXIN IN 25 PER CENT. ALCOHOL.		
1	0.006	..
1	0.007	..
1	0.008	+
1	0.008	+
1	0.009	+
DIGITALEIN 7 PER CENT. ALCOHOL, 25 PER CENT. GLYCERIN		
1	0.025	..
1	0.026	..
1	0.026	+
1	0.027	..
1	0.028	+
1	0.028	+
1	0.029	+

The results of these experiments on frogs would indicate that digalen, basing conclusions on the assay of the best testing samples, occupied a place between crystalline digitoxin and digitalein, the comparative values, according to the above tests, being crystalline digitoxin 0.008, digalen 0.022, and digitalein 0.028.

Experiments were also carried out to determine the comparative effects of the various samples of digalen on blood-pressure. For this purpose, cats of about the same weight (3,000 to 3,600 grams) were used and were anesthetized for the experiments by ethyl carbamate (urethane) and chloral given by the stomach. The blood-pressures were taken from the carotid artery and the injections of the drug made through the external jugular. In working with digitalis it is ordinarily advisable, on account of its accumulative action, to take no reading except the first as determinative, but in this series, after an interval of an hour, further injections were made and the readings incorporated to make up the average. In all cases 2 c.c. doses were used, and the rise in blood-pressure and the decrease in heart-rate estimated in per cent. The results of this series of experiments are given in Table 4.

TABLE 4

Summary of experiments made on the blood-pressure of cats.

	Average Decrease in Rate.	Average Increase in Blood-Pressure.
	%	%
Digalen No. 1 (two readings)	2.0	7.1
Digalen No. 2 (two readings)	7.7	3.6
Digalen No. 3 (two readings)	6.9	5.0
Digalen No. 4 (four readings)	5.0	7.7
Digalen No. 5 (four readings)	6.2	10.2

The results tabulated in this summary agree in a general way with those obtained in the experiments on the frog's heart, viz.: the oldest preparations give the smallest increase in pressure. Exceptions are to be noted, however, in the case of Sample 1, which gives a relatively marked increase in blood-pressure, but failed to stop the frog's heart in systole. Also Sample 2, which assayed on the frog's heart somewhat higher than Sample 3, has somewhat the lesser effect on the blood-pressure.

Blood-pressure experiments were also carried out with digitoxin (Merck) and digitalein (Merck) in order to compare their effect with that obtained from the use of digalen.

The digitoxin was dissolved in 25 per cent. alcohol, the digitalein in 25 per cent. glycerin and 7 per cent. alcohol, the solvents used in the manufacture of digalen.

Digitoxin in three experiments, using 0.2 mg. doses in two cases and 0.4 mg. in the other, gave an average rise in pressure of 22.1 per cent., along with a decrease in rate of 7 per cent.

Digitalein, in an average dose of 1 mg., gave a rise in blood-pressure of 9 per cent.; the heart-rate was slowed on the average 10 per cent.

In view of the fact that the average rise in blood-pressure from 2 c.c. doses of digalen (0.6 mg. amorphous digitoxin) was only 6.7 per cent., and that the average decrease in rate from the same dose was only 5.6 per cent., one may conclude that digalen is considerably less active than crystalline digitoxin and that it is of about the same potency as corresponding amounts of digitalein. This conclusion is also borne out by the following series of experiments.

White mice of the same lot were weighed, placed in separate jars and injected beneath the loose skin of the back with digalen, digitoxin (Merck) and digitalein (Merck). The doses were calculated in terms of grams of body weight. Increasing amounts were injected until the minimum lethal dose was obtained. The results of these experiments are given in Table 5.

TABLE 5

Determination of the minimum lethal dose for white mice, subcutaneous injection. Dose in milligrams per gram of body weight.

Number of Mice Used.	Dose.	Result.
DIGITOXIN IN 25 PER CENT. ALCOHOL		
1	0.008	..
1	0.011	..
1	0.014	+
1	0.016	+
1	0.017	+
DIGALEN SAMPLE NO. 5		
1	0.030	..
2	0.040	..
1	0.050	+
1	0.060	+
DIGITALEIN 7 PER CENT. ALCOHOL, 25 PER CENT. GLYCERIN		
1	0.015	..
1	0.025	..
1	0.040	..
1	0.055	..
1	0.065	+
1	0.070	+

om this table it is apparent that the minimum lethal for digalen again is considerably larger than that igitoxin (for mice about four times). Digitalein, n other methods of testing, assayed weaker than len, but, according to this method, appeared to be little weaker comparatively.

ith regard to the general action of digalen on both s and mammals, it appears to possess considerably e stimulant action on the central nervous system n other digitalis preparations. In almost every case the frog experiments the early symptoms of absorp- n were convulsive movements. At times these were nic, but more often were tonic in character, the legs ng extended and remaining in hyperextension for ne time. The effect of digalen on mice was much the me, except that the convulsions were usually clonic in aracter. In the blood-pressure experiments no convul- ns were so clearly present, the animal being anesthe- zed, but it was noted that struggling was often a sequel the injection of even small amounts of digalen and at, to prevent this, further small doses of ethyl car- amate were necessary. It is of interest, in this connec- ion, to remember that Teichmann[12] reported such ymptoms of excessive central nervous system stimula- ion in a patient who was given 4 c.c. digalen intra- enously.

CONCLUSIONS

Digalen is not a uniformly stable preparation, as is shown by the gross appearance of Sample 1 and by biologic tests of the five different samples. Biologic tests also indicate that digalen is relatively much less potent than corresponding amounts of crystalline digitoxin, but that it is of about the same activity as digitalein.

The experience of clinicians indicates that digalen is much less effective than is claimed and that the secondary action of the digitalis group appears equally often after its use as with the older and cheaper galenicals. Its use in cases of acute heart failure, whether by intramuscular or intravenous injection, seems to open serious objection (on account of the pain and danger of thrombosis) and it would apparently be better practice in such cases to use either strophanthin given intramuscularly or one of the preparations of the suprarenal glands by intravenous injection.

Twenty-fifth and E Streets N. W.

The Influence of Carbohydrates and Fats on Protein Metabolism.—That carbohydrates are most probably important factors in protein metabolism is shown by E. P. Cathcart (*Jour. Physiol.*, October, 1909, xxxix, 311.) in a series of dieting and fasting experiments on human individuals. The amount of creatin appearing in the urine was taken as an indication of the condition of the protein metabolism in that individual, since it was shown, by Benedict as well as by Cathcart himself, that creatin was a constant excretory product during inanition and hence purely of endogenous origin. As soon as food is supplied the creatin practically disappears from the urine. The hypothesis is put forward that the carbohydrates are absolutely essential for endocellular synthetic processes in connection with protein metabolism; that a resynthesis takes place in the tissues (muscles) and that the greater part of the muscle protein tissue nitrogen which is set free as the result of work does not appear in the urine but is reutilized; "further, that the foodstuff which plays the most important rôle in this resynthesis is carbohydrate. Fats apparently must undergo some change which requires time to produce." It is also found that with a carbohydrate diet, practically nitrogen- and fat-free, there is a fall in the ouput of urinary nitrogen; with a fat diet, practically nitrogen- and carbohydrate-free, there is a marked rise in the output of urinary nitrogen.

TWO CASES OF CREEPING ERUPTION

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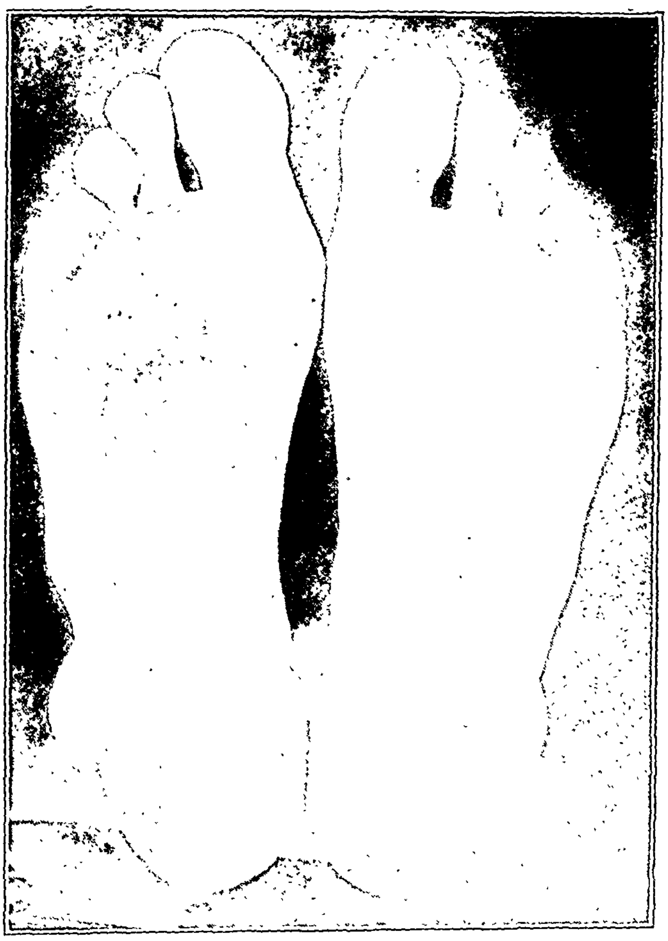
This condition of dermamyiasis is apparently rare; I can find but one good description, Hamburger's article in the *Journal of Cutaneous Diseases*, 1904. Since studying the two cases here reported, two others have been sent to me, so the apparent rarity of the condition may be due chiefly to its passing unrecognized.

It would seem very much more satisfactory if we could find the larvæ of this parasite, but everybody in this country seems to have failed to do so, though several Russian investigators state they have done so.

Case 1.—The patient, Mrs. B., first had an attack of the eruption on the right ankle in September, 1908. This lasted two months. The patient went to a hospital, but did not understand what the disease was and apparently went away without any treatment. I did not see this, but according to the patient's description there was a very small elevated pimple like a mosquito bite, which itched badly, and from this a little red line extended and healing at back end as fast as it extended. The patient could distinctly feel and see the parasite's progress; it ran up and down the ankle four or five inches, came back again, then across. Some days it did not move and others it progressed an inch or two inches.



Creeping eruption on plantar surfaces of feet, Case 2.

The second attack was about three months after the first. The eruption made its appearance on the dorsal surface of the left hand. I saw and followed the attack; it was characteristic in every respect according to the description in Hamburger's article. A raised red line 2 mm. in diameter and covered at varying intervals with small vesicles commenced in the middle of the back of hand and traveled around the back of the hand in loops, back and forth, and finally ended down between the forefinger and thumb and then apparently died. I failed to demonstrate any larvæ. The patient is now well.

I treated the second attack with various caustics, antiseptics and by incisions, but cannot say that the treatment had any effect as the disease seemed to stop spontaneously. No idea can be formed as to how the patient became infected.

CASE 2.—The patient, Sergeant F. P., Eighth Band, C. A. C., first noticed small red pimple on middle of plantar surface, left foot, very itchy; from the pimple extended a small red line, serpentine in character; it seemed to extend about one inch in twenty-four hours. Two weeks later there was a similar condition on top of the fourth toe of the right foot, the line extending around the toe to the plantar surface of foot, running toward the heel for two and one-half inches, turning to the left about one and one-half inches, then doubling back on itself to the right aspect of foot. The patient could distinctly see and feel the progress of the parasite. The itching at night would keep the patient awake. These lines of eruption corresponded exactly to the description of creeping eruption as given by Hamburger in his article on the subject. Repeated examinations of small portions of skin and tissue failed to demonstrate the larvæ of the parasite, but in each instance stopped the progress of the disease at that point.

This case has been observed for about three weeks, and at present the eruption has practically disappeared. With the exception of a few scales along the line of the parasite's travel, the patient has entirely recovered. This case I believe to be specially interesting, because, so far as I am able to find out, it is the only case reported in which the eruption has occurred on two different parts of the patient at the same time.

Continuous observation on my part showed that this line increased about three-quarters of an inch in twenty-four hours. No idea can be formed as to how patient became infected.

MODIFIED TECHNIC IN RESECTION OF THE RECTUM *

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CHICAGO

The accompanying schematic drawing will serve to illustrate a method of resecting the rectum employed by myself and Dr. Gronnerud in a special case. The growth for which the technic was employed extended

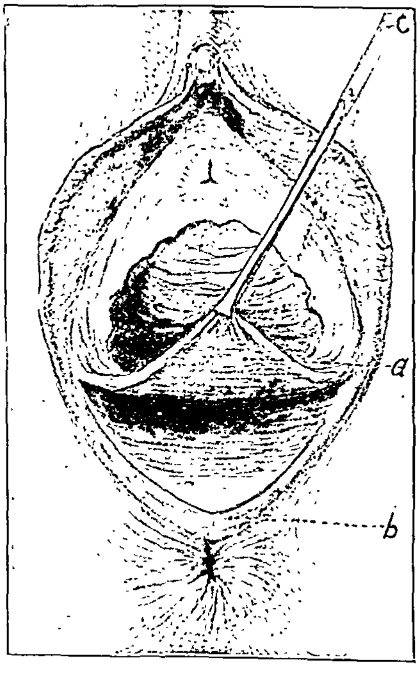

Fig. 1.—Mucocutaneous incision, corresponding to perineorrhaphy and extending from caruncle to caruncle, which was first made; also method of splitting the rectovaginal septum, a and b, and of elevating the posterior vaginal flap, a.

This illustration and those following are by Dr. Zan D. Klopper.

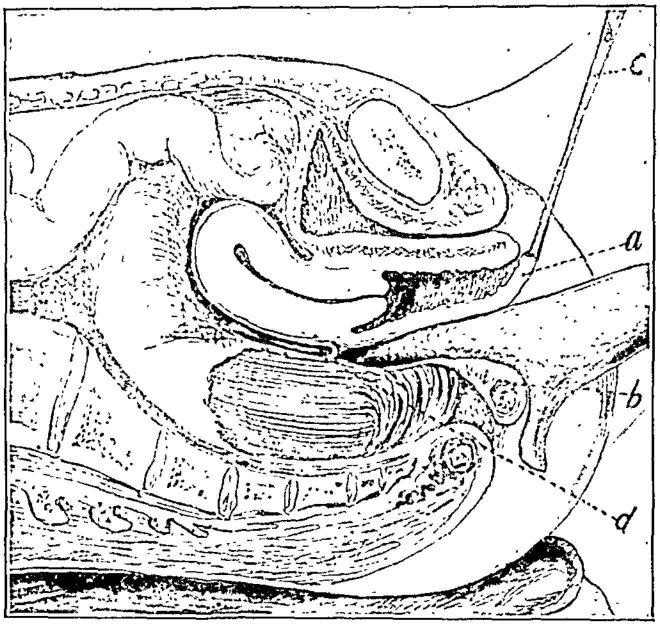

Fig. 2.—The rectovaginal septum, a and b, has been divided, the flap, a, raised, the rectum exposed and the index-finger carried up through the divided septum to the peritoneal reflection, d.

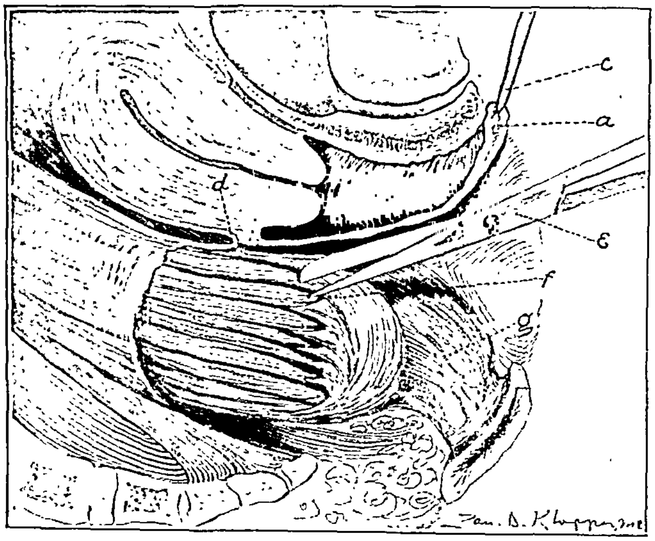

Fig. 3.—Dissecting fascia and levator ani muscle, l, from rectum, g.

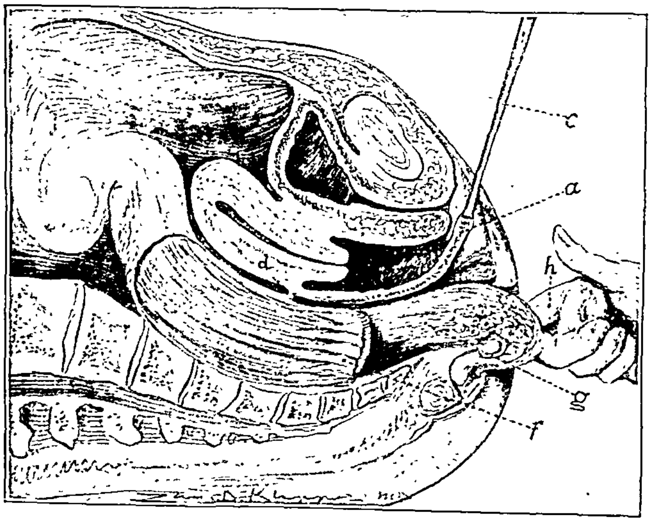

Fig. 4.—Lateral view. The rectum has been dissected from the cellular tissues, then pulled downward and outward with the finger, h, which has been passed between the rectum and coccyx. This exposes the tumor mass, g

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* Read at the Eleventh Annual Meeting of the American Proctologic Society, Atlantic City, June, 1909.

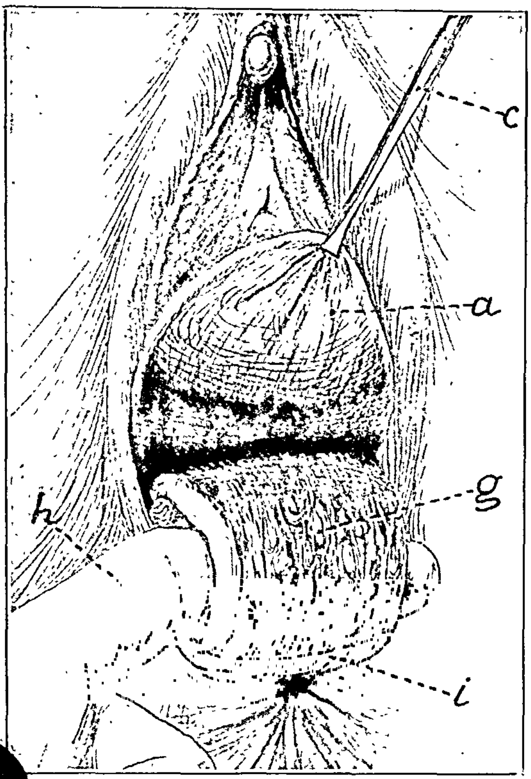

Fig. 5.—Front view of the same position as shown in Figure 4; i, line for distal incision.

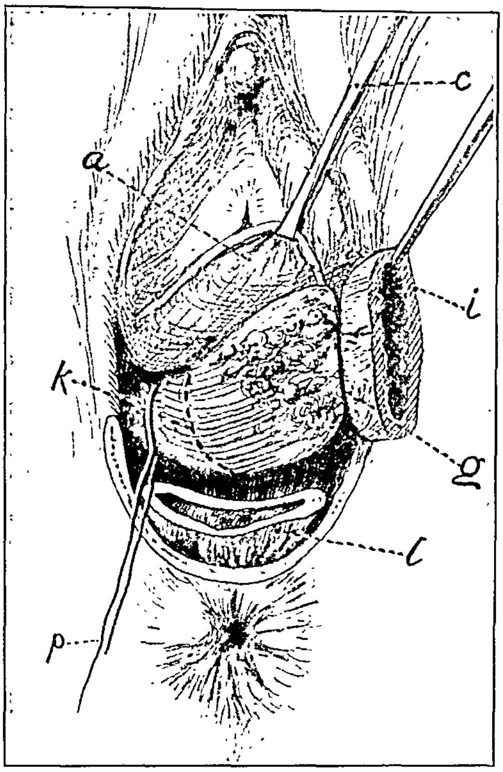

Fig. 6.—The distal incision has been made and the loosened end of the bowel containing the growth, g, elevated; l, is the anal canal; p, ligature for temporarily tying off the bowel; k, line for proximal incision.

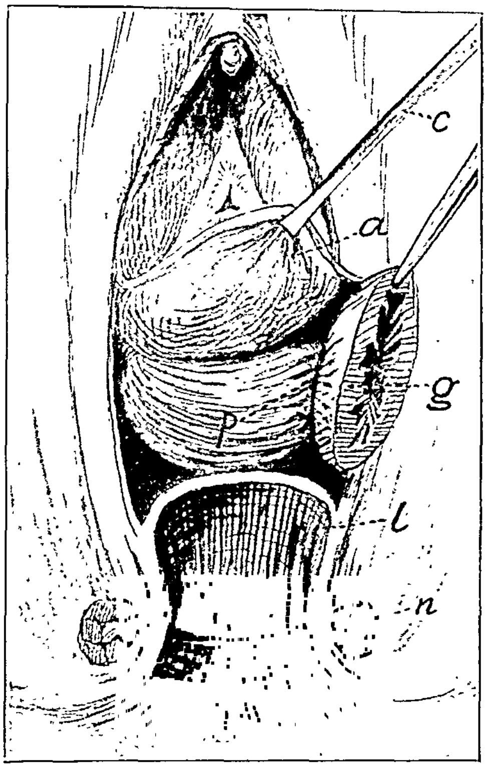

Fig. 7.—In this cut the tape, p, has been tied, the growth removed, and the sphincter, n, and the anal canal, l, incised and laid open.

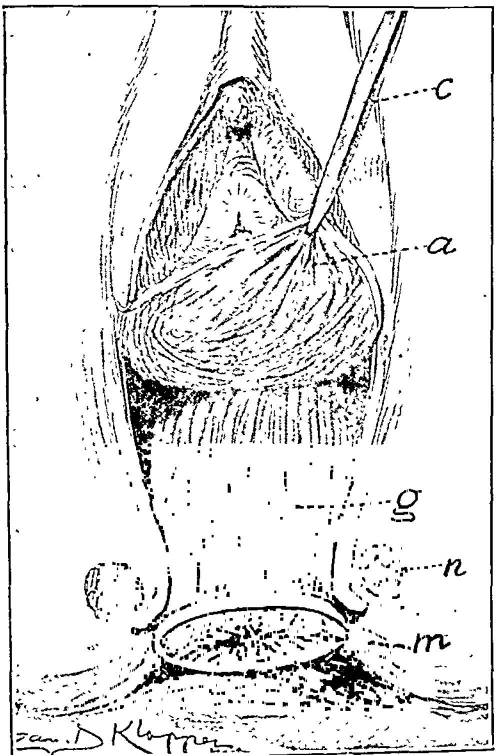

Fig. 8.—Rectum, g, adj … he divided anal canal prepa… ion.

It
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of urinary nit…
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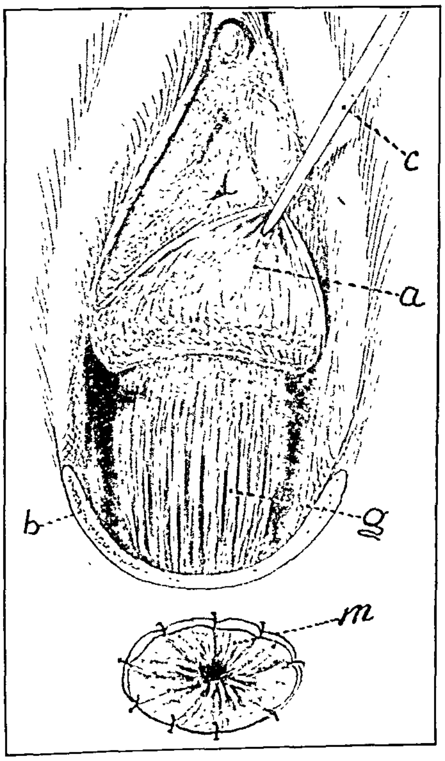

Fig. 9.—Rectum, g, being pulled through the everted and undivided canal and sutured externally at m, after which it retracts as shown in Figure 11.

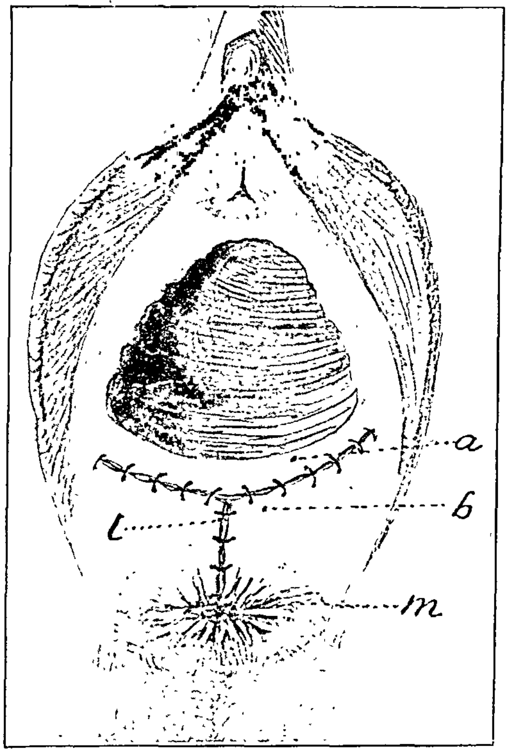

Fig. 10.—Lines of suturing in the completed operation, when the anal canal has been divided as shown in Figures 7 and 8.

upward from the proximal border of the levator ani muscle for about 2½ inches.

After removing the growth, as illustrated, we divided the anal canal and completed the operation as shown in Figures 7, 8 and 10. In some cases, however, I think it preferable to evert the anal canal, pull the upper part of the rectum or sigmoid, as the case may be, through this eversion and effect the end-to-end anastomosis on the outside and complete the operation as shown in Figures 9 and 11.

After the growth had been removed the incision was closed with buried catgut sutures and silkworm gut for the skin. The posterior vaginal flap, covering up, as it did, the field of operation, prevents the urine. vaginal and uterine secretions from coming in contact with the wound. Moreover, should it be found necessary, the reflection of peritoneum at d, in Figure 2, could be divided and the operation extended into the abdominal cavity.

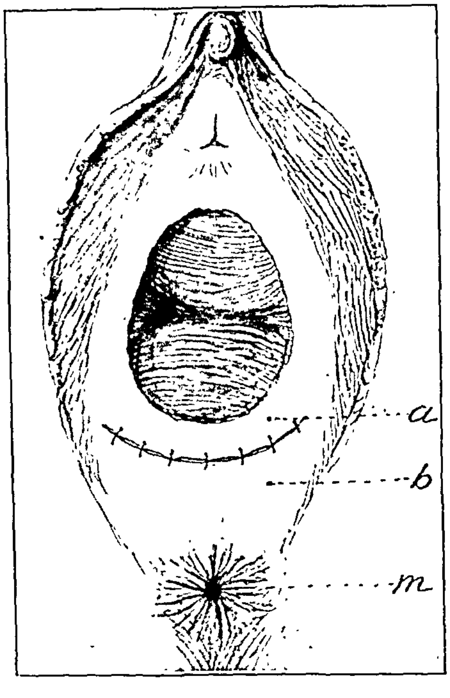

Fig. 11.—Line of suturing the rectovaginal septum in the completed operation when the anal canal has not been divided as shown in Figure 9.

The legends under the illustrations show the various steps in the operation.

103 State Street.

INTRACRANIAL NEURECTOMY OF THE SUPERIOR AND INFERIOR MAXILLARY NERVES FOR TIC DOULOUREUX

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History.—H. L. B., aged 68, applied for surgical treatment July 18. Patient gave a history of a most terrible tic douloureux of the left face and head from which he had suffered the most intense pain for ten years. He said further that he had had periodic attacks for thirty-five years, but the continuous pain had been present for nine or ten years. Until five years ago the area supplied by the ophthalmic division of the fifth nerve had been the one most affected, especially the infraorbital branch, and he had submitted to an operation in Omaha, where this nerve was divided. This gave no relief, but rather intensified the pain in the area supplied by the supratrochlear and supraorbital branches of, the first division and the superior and inferior maxillary divisions. While the patient was in the hospital for three days previous to the operation he showed slight symptoms of dementia, at times wandering about in a semicomatose condition. He had an extremely sensitive sore on the left side of his nose, which had been present for, a long time. During this preoperative period of three days he had two epileptic attacks, to which he had been subject ever since the pain had become so intense. He could not bear the touch of the hand on any part of the area supplied by the nerve, although I noticed that he was not very sensitive in the area of the infraorbital nerve supply which, as stated above, had been cut. He complained also of great soreness of the gums, so sensitive that at times he could not close his mouth and he rarely ate anything but liquid diet. Shaving of the left face and head caused great pain. Some conjunctivitis was present.

Operation.—On the fourth day after admission I performed Cushing's operation for removing the Gasserian ganglion. Instead of clipping the zygoma with bone forceps as he suggests I used the Gigli-Haertel saw, first making two small grooves underneath the zygoma near the helix and malar bones with a sharp pointed probe and drawing the flexible blade through the opening with a curved forcep. This gave a most satisfactory severance of the arch and there was absolutely no deformity as accompanying photographs (Figs. 1 and 2) show. Following the suggestion of Cushing and others I nipped away a small portion of the skull at the junction of the great wing of the sphenoid and the squamous portion of the temporal bone, with a chisel and in so doing ruptured the middle meningeal artery which lay very deeply embedded in the meningeal groove in the bone, being more superficial than I had anticipated. After enlarging the opening to about 1½ inches I tied the ruptured meningeal and was bothered with no more hemorrhage from this source. I want to emphasize the necessity of clipping the opening in the bone to include the crista infratemporalis and thus give a much clearer field for operative procedure; the lower the bone incision the better. After tying the artery I raised the temporal lobe with a flexible retractor about 1 inch in width and explored the cavity. Few of the accounts mention the almost absolute necessity of using a head light and many operators making the operation for the first time are apt to omit this most important detail. As all of the literature states, the hemorrhage is most annoying. Everything in the cavity bleeds. I tamped the bleeding points with very small sponges attached to the ends of straight forceps with little effect on the [illegible]ge. I found [illegible] by pack-

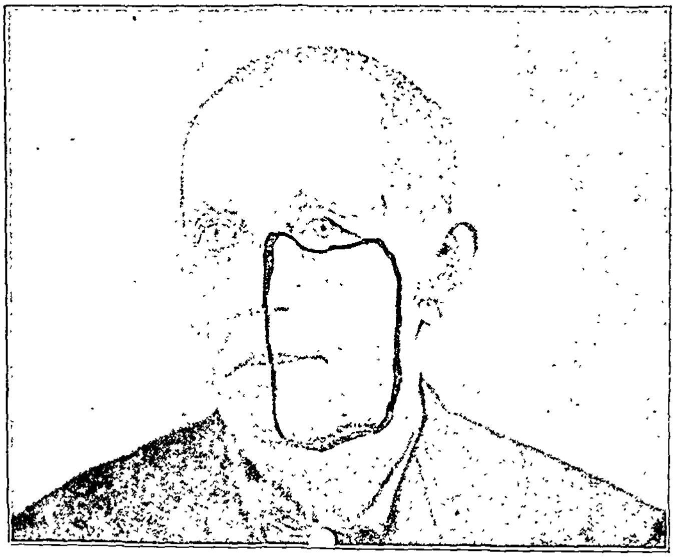

Fig. 1.—Neurectomy in tic douloureux; area of total surgical anesthesia at end of fourth week after operation.

g the cavity tightly with dry gauze and leaving it for a inute or two I could control the hemorrhage entirely for he time being but this became very tedious work when ich packing had to be replaced after the slightest manipulaion of the intracranial structures. I examined the sheath f the dura which enclosed the ganglion and found that it as hard, almost like gristle and I was unable to separate he two layers with a blunt dissector. I am sure that this ondition was pathologic for the consistency of the dura was uch tougher, thicker, and more like gristle than the flexible brous dura. Unable to cope with the hemorrhage to the extent of separating the sheath, dissecting out the ganglion and extirpating the sensory root, etc., I had to content myself with intracranial neurectomy of the superior and inferior maxillary nerves. I divided these at their entrance into the foramina rotundum and ovale and pushed the severed roots down through their exit through the foramina.

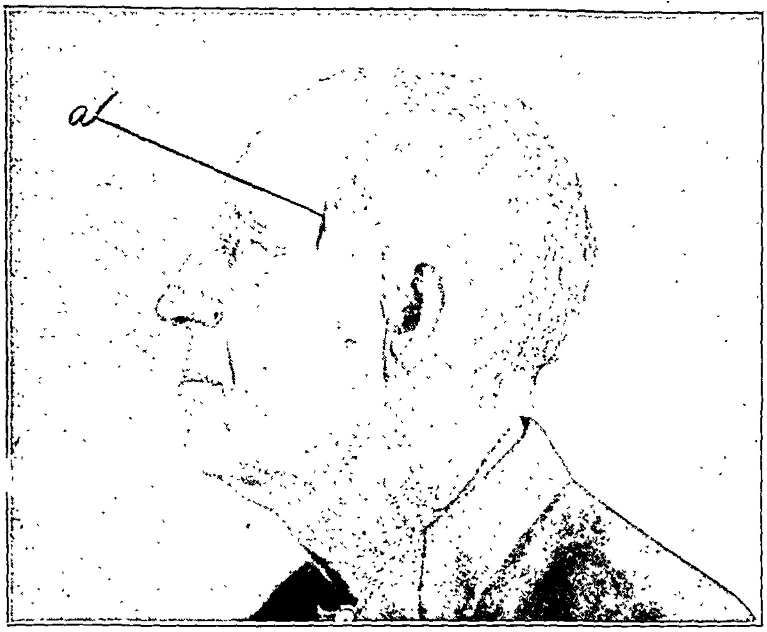

Fig. 2.—Four weeks after operation; a, gap where drainage was left.

I then packed the cavity with iodoform gauze, sewed together the edges of the temporal muscle and fascia, leaving the opening in the skull to close naturally and tacked the edges of the skin together with fine linen leaving a small opening for the end of the iodoform packing. When the hemorrhage is so extensive I believe the packing left in the cavity for twenty-four hours serves to control it and can do no harm except lengthen the period of repair.

The operation lasted two and one-half hours. At the end of the second hour the patient's pulse became very weak, but he rallied well after hypodermoclysis with physiologic salt solution. Just before finishing, physiologic salt solution should be given per rectum to relieve the great thirst which follows long anesthesia. As a parenthesis I might add that operators will do well to give the saline enema just before discontinuing the anesthetic in all operations of any duration.

Postoperative History.—Patient rallied well and reported complete anesthesia of the left side of face and head in the area designated in Figure 1. There was some sensation in a small area supplied by the uncut supraorbital and supratrochlear nerves, but in spots there was sensory paralysis due no doubt to the handling of the ganglion and pulling of the ophthalmic divisions. I removed the packing at the end of the second day. The wound healed rapidly. For the first few days there was some discharge which gradually subsided. The wound had completely healed by the end of the second week except the small opening where the packing had been removed and this had granulated by the end of the fourth week. The surgical anesthesia at this period is shown in Figure 1, and Figure 2 shows the healed incision with a small scar and no deformity from severing the zygoma.

How long this surgical anesthesia will last I am at a loss to say, but even if the relief is only temporary the operation without removal of the ganglion is perfectly justifiable. Whether relief becomes permanent time alone will show. To remove the ganglion as Cushing suggests, i. e., dissect it away from the sheath, clip the three divisions and "evulse the sensory root," requires the greatest skill in technic, a skill which can only be acquired by performing the operation on several cadavers before attempting it on the living patient. In any case the hemorrhage may compel one to abandon complete extirpation of the ganglion and to be content with intracranial neurectomy of the superior and inferior maxillary nerves, an operation which in itself demands the most careful study and preparation before attempting. In my opinion, the Cushing operation is the most practicable for the entire removal of the ganglion, and his method is the best to follow even if the nerves alone are cut. The greatest difficulty after entering the cranial cavity is the separation of the sheath and the removal of the ganglion intact, but any skilled operator with technic perfected by work on the cadaver should be able to accomplish this when there is no pathology in the region of the cavum Meckelii.

Seventh and Edmond Streets.

A NEW INTERLOCKING INTESTINAL STITCH *

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Up to the present time the interlocking intestinal sutures consist of an interlocking mattress suture described by Dr. Raymond Turck,[1] description of which is given below, and an interlocking suture described briefly by Dr. Frank Suggs,[2] U. S. A. This latter suture when completed is similar to the suture described for the first time in this article, but differs entirely in the manner in which it is inserted, requiring a needle with two eyes, also that the needle be rethreaded for each stitch by the operator and rethreaded in the wound, as one stitch already inserted remains in the needle. This is known to be a difficult task even with wet suture material and intestinal needles under the best conditions. Furthermore, I wish to state in regard to these stitches that, although they are similar, after being inserted, they were originated independently of each other. Two months previous to the appearance of the description of Lieutenant Suggs' stitch I had demonstrated my stitch before the Advisory Committee of the Laboratory for

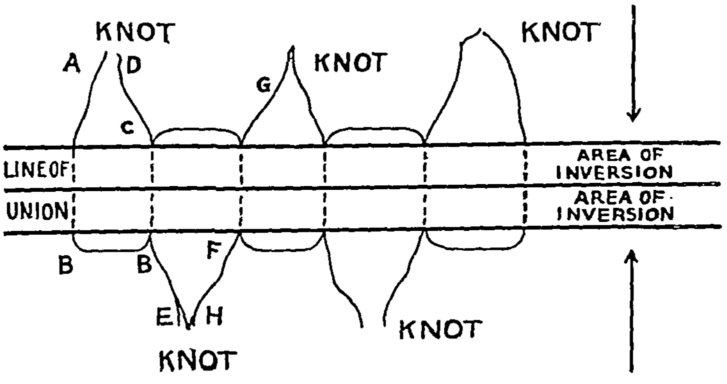

Fig. 1.—Suggs' method of suture.

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* From the Laboratory for Surgical Research, Harvard Medical School.

1. Turck, R.: Ann. Surg., December, 1908.
2. Suggs, F.: Letter, Ann. Surg., April, 1909.

Surgical Research at Harvard Medical School, and had been using the stitch on dogs for some time. I herewith reproduce Dr. Suggs' illustration (Fig. 1) and quote as follows from his article in order that the differences in the two methods may be made clear:

> A needle is used with two eyes placed near together at the end. One eye, No. 1, is threaded with suture A, and the needle is passed through the two edges to be brought together, in the Lembert fashion, and out at B (Fig. 1). Here eye No. 2 is threaded with another suture and the two are carried back by the needle through the tissue as before, emerging at C. Unthread eye No. 1 and we have the free suture end D and also E that was left behind (long). Now rethread eye No. 1 with a new suture and pass the two again through the tissues to F, leaving behind as before the free end G. Unthread eye No. 2 leaving H free. Proceed thus to the end of the suture line.
>
> Before tying A to D and E to H, etc., see that D has been passed from within outward beneath the loop at C and the same for E at B.

The Turck interlocking suture, as may be seen by the diagram, consists of an overlapped mattress suture, with the ends of the suture crossed when tied, so that they interlock. This stitch has the advantage of absolutely preventing any leakage between the stitches. Two of Dr. Turck's illustrations are included (Figs. 2 and 3) in order that his stitch may be illustrated, and that the advantage of any interlocking stitch over the simple or mattress suture may be shown.

While trying Dr. Turck's stitch on dogs, in the laboratory for Surgical Research, it occurred to me that an interlocking, continuous stitch might be devised. This idea resulted in the following suture, which is really interrupted when completed, but is applied as a continuous suture, since, if one cared to have the thread long enough, only one needle and one piece of thread need be used to complete the union in a lateral anastomosis, gastro-enterostomy or simple closure of an intestinal wound.

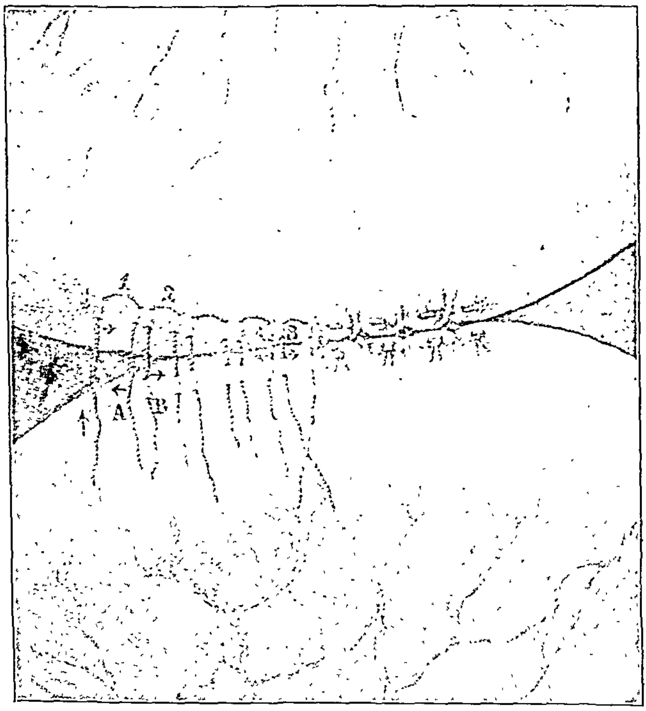

Fig. 2.—Halsted mattress sutures; illustrating the manner in which spaces between sutures are increased on tying the knots. This feature is exaggerated in the drawing to bring out the weak points more fully.

The ordinary intestinal needle is threaded with a good-sized piece of paraffined linen, or whatever suture material may be chosen, one end being pulled out so that it is slightly longer than the other; the needle is then inserted in the Lembert fashion, first through one piece of intestine and then through the other, so that, when pulled through, but for an end, the stitch consists of but one strand; the needle is again inserted as for the ordinary mattress suture and emerges on the side from which it started, but when the thread is pulled up the suture in the second set of holes contains two strands of thread, owing to the unevenness of the ends when the needle was threaded. There is now a simple mattress suture with one loose end and a double end within the needle, and another loose end on the opposite side of the stitch (Fig. 4); this latter loose end is now grasped with the fingers of the left hand (Fig. 4) and pulled gently, the needle being held in the fingers of the right hand so that the thread between the two hands is taut, with the result that the double strand of thread on the needle side of the wound separates and one strand bellies out close to the wound, the other remaining straight and taut as is shown in the illustration. Now if the assistant cuts the strand which bellies out (Fig. 4), it will be found to be the second end of the mattress suture and will leave one mattress suture and one-half of another already inserted. The loose end which has just been cut is now carried once around its mate (the uncut suture), thus providing for the lock when the next suture is applied. As the next step the needle is slid back along the thread a short distance, in order that, when the needle is again inserted for another mattress, the end will stick out so that it may be grasped as in the previous case. The second limb of the mattress is now made, and, as in the first case, there is a double strand in the stitch-holes. Again the loose end of the double strand is pulled on by the fingers of the left hand, the needle being held in the

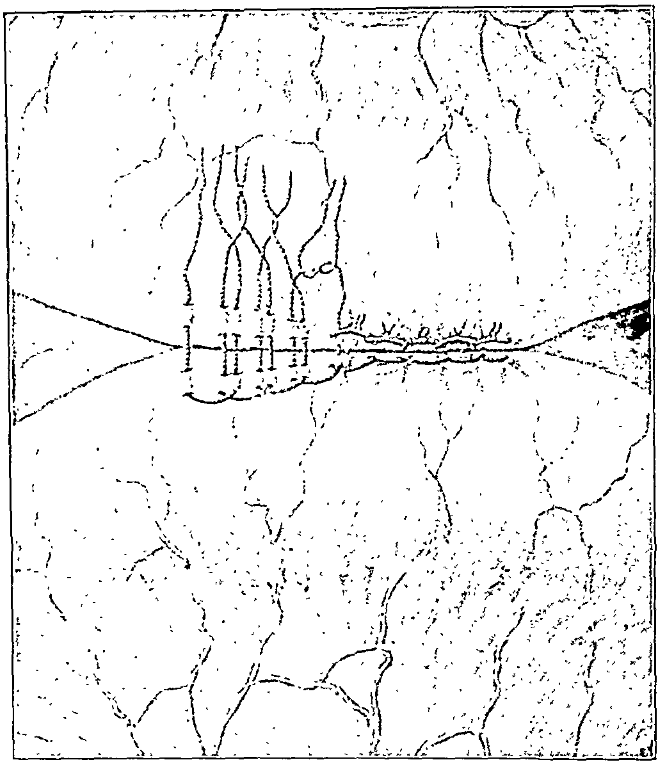

Fig. 3.—Turck interlocking suture with all knots on one side, showing manner of insertion of loops, and crossing of loose ends to form the chain. (After Turck.)

right; the assistant cuts the thread which bellies out; again the suture is carried around its mate to be interlocked, and again the needle is slid back for the next stitch, and the process repeated until the circuit is completed.

There are two questions which one might naturally ask now, the principle of the stitch being understood. How is the last stitch interlocked with the first in finishing the circuit; and how could one go on if it became necessary owing to the stitch being used up or the needle broken, to take a new needle or a new thread? The same method applies in both cases.

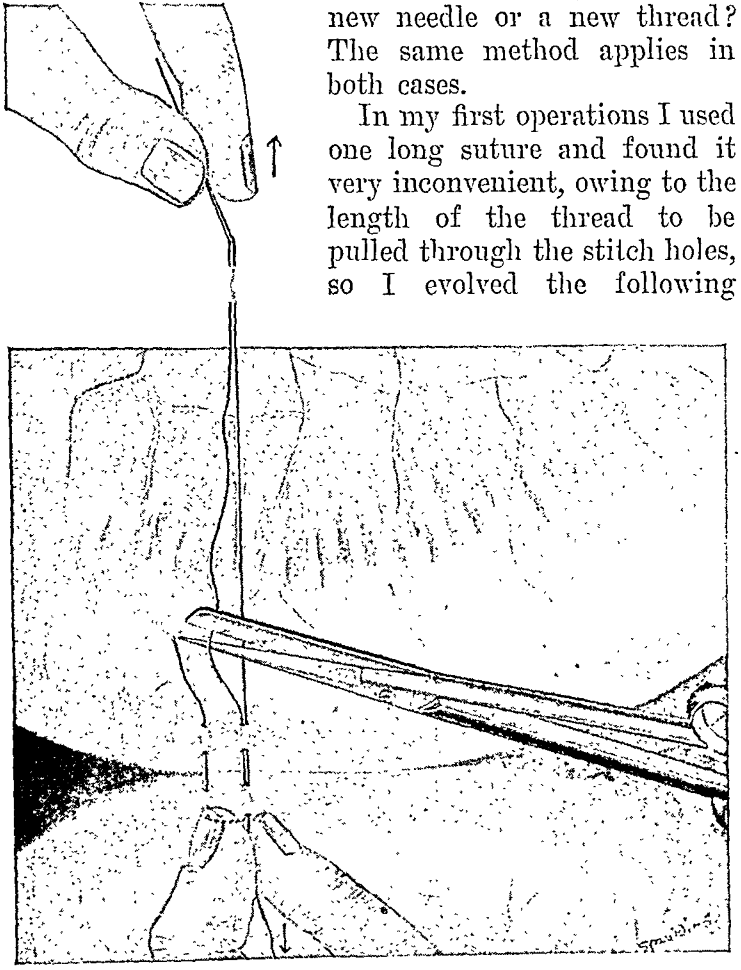

Fig. 4.—The two strands in the second set of stitch-holes; also showing the method of pulling on the tail thread, so that the strand forming the second limb of the mattress may be cut. This illustration also shows plainly how one mattress stitch and one-half of the next mattress stitch are inserted at one time. (After Turck.)

In my first operations I used one long suture and found it very inconvenient, owing to the length of the thread to be pulled through the stitch holes, so I evolved the following technic, which allows a new stitch to be substituted for the old one at any time. When the thread is becoming so short that another suture cannot be inserted with it, it is carried through the second part of the mattress as in the foregoing, but instead of two strands being left in the last stitch-holes, the loose end is pulled through, so that there is only a single strand left (Fig. 5). The mattress suture now stands with its proximal end locked, but its distal end inserted with a single strand as a simple mattress suture would be. The fresh suture is now inserted beneath the loop, on the side opposite the free ends and crosses to the other side between the free ends, not being inserted in the bowel at all (Fig. 5). The free ends are now tied, and as this is done it includes the end of the new suture so that it is interlocked, and a fresh start is made as in the beginning, an end being left free every time until the operator comes back around the circuit to the first stitch. Now as to locking the last stitch with the first in completing the circuit, I have left this part of the description until the last in order that the reader might not be confused at the start in understanding the principle of the stitch.

The joining of the last and the first stitch is provided for when the first stitch is inserted, by laying in a new suture as described above, with the exception that, instead of being locked to the distal limb of the first mattress suture inserted, it is locked to the proximal, as though one were about to stitch in both directions. Here it is left, being placed out of the way, while the suture continues around the posterior to the anterior line of stitches. Nearly always, as the anterior line of suture nears the point where it was begun, the thread will be found becoming too short and then, instead of inserting a new suture beneath the loop and between the free ends as just described, one goes to the suture left locked to the distal limb of the first stitch and proceeds to the end just dropped, making the final lock by passing the needle between the two free ends and out beneath the loop, thus completing the circuit, each stitch being interlocked with the other and each knot being tied first on one side and then on the other.

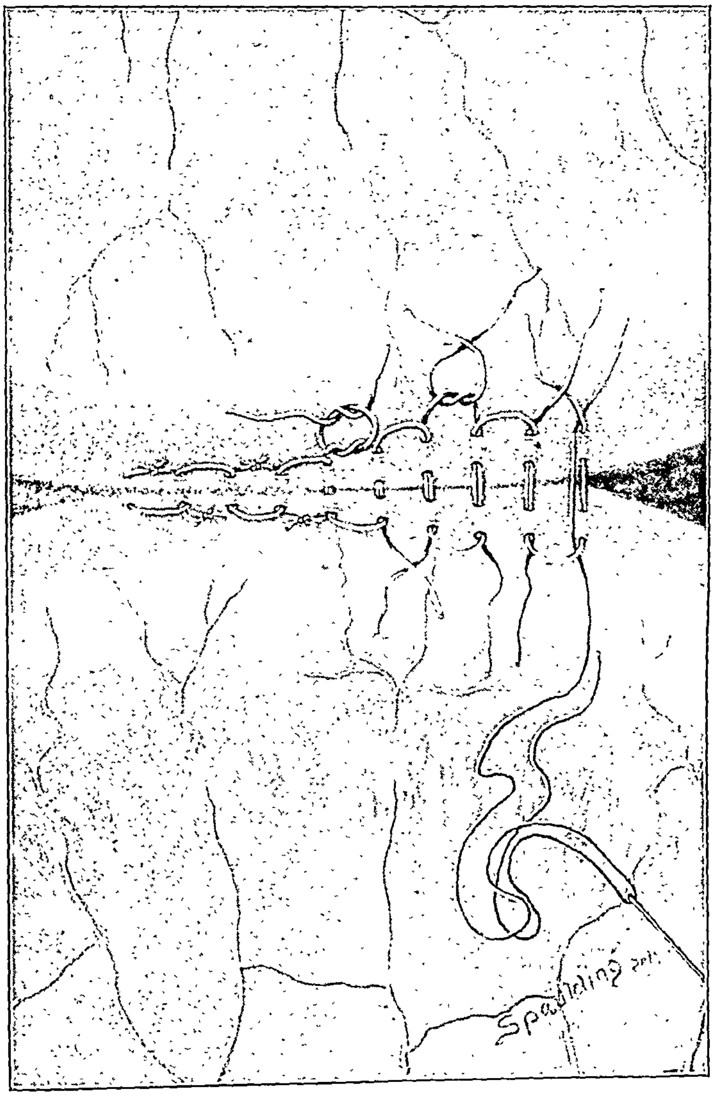

Fig. 5.—Manner in which the stitch locks in the stitch-holes; also stitches locked and tied. At the right end of suture is shown how a new suture is locked into the suture before it. (In the same manner the last suture is locked with the first in completing the circuit.)

If one chooses to use but one long thread for the whole circuit, the ends of the first suture must not be tied but left in the jaws of a hemostat, so that the last stitch, as the circuit is completed, may be interlocked with it.

One or two small points, which make the application of the stitch easier, may be added.

In doing an anastomosis of any two pieces of intestine, it will be found safer and easier to begin the stitch so that the corner between the anterior and posterior line of sutures be half turned, in order that when the end of the suture approaches the point where it was started, one does not have to sew deep down where the two walls of the bowel are held closely folded together by the posterior row of sutures. One should also be careful to avoid twists in the two strands of the suture, and these should all be taken out before the suture is inserted.

Care should also be taken not to leave the tail suture (that is, the suture to be grasped by the left hand and pulled back) any longer than is necessary to tie, because by doing so the length of the suture is sacrificed just so much, and a new suture is necessary so much sooner.

This suture has many advantages over the Turck suture. In the first place, it does not require as many stitches, because there is no overlapping, and that much distance is saved for every stitch. It may be inserted much more rapidly, because each stitch inserted really means one and one-half stitches inserted. It saves the extra stitch-hole which occurs in the overlap in the Turck stitch, the lock being all in one set of stitch-holes. Its pull in locking is one stitch on another, where they cross in the stitch-holes, and not on a piece of bowel which is within the grasp of the two stitches, as they lock in the Turck stitch. This seems to be a distinct advantage, for, if in the locking process there is much pull, there must be considerable pressure on the tissue included between the two stitches, if they are locked as in the Turck switch, by grasping a piece of tissue between them. While it is no advantage except to save one from confusing ends, one may tie each stitch as it is inserted, while in the Turck stitch the first stitch cannot be tied until the second one is put in.

Over Dr. Suggs' method this suture has the advantage of requiring no special needle, and of requiring no rethreading or unthreading. It also has the advantage of carrying through the bowel only the same thickness of suture material as would be carried through it in the use of any suture, that is, two strands, while in Dr. Suggs' method four strands must be carried through each time that the needle is inserted, since the needle is threaded with two separate sutures. It will also be found that, with a needle carrying two sutures on it, it is not easy to carry out the Lembert principle because of the difficulty of pulling four strands of suture material through the delicate wall of the bowel without ripping it.

I have applied this stitch to ten dogs, in some doing gastro-enterostomies and in some lateral anastomoses; I have inserted only one row of stitches, and in some of the lateral anastomoses the union has been made so near the knuckle of intestine that the strain on the anastomosis must have been very great. The dogs have all been killed and the specimens removed at the end of twelve days, and in all cases smooth union with no leakage has been found. There have been no adhesions from the free ends of the sutures, as they bury themselves by the infold caused by the mattress sutures.

I believe this suture to be the quickest, easiest and safest of all mattress or interlocking sutures.

I wish to express my thanks to Dr. Oliver Tinkham and Mr. Roy MacAusland, who have at various times acted as my assistants in these operations.

EPIDEMIC POLIOMYELITIS IN MONKEYS

THE ACTIVITY OF THE VIRUS *

SIMON FLEXNER, M.D., and PAUL A. LEWIS, M.D.
NEW YORK

In our previous communications on experimental epidemic poliomyelitis[1] we described its successive transmission through two series of monkeys and discussed the nature of the virus that causes the disease. In the first place, we stated that by employing the intracerebral mode of inoculation of the virus the disease could be readily transmitted from monkey to monkey, possibly through an indefinite series, but that successive transmission could be accomplished also by means of inoculation into a large nerve (sciatic), into the circulation, the peritoneum and the subcutis. In the second place, we showed that the virus was filterable through a Berkefeld filter and withstood glycineration. In the present article we wish to describe certain additional facts that have been ascertained concerning the virus of epidemic poliomyelitis.

The virus was shown, by inoculation experiments, to be contained in the spinal cord and brain, but it was not known whether it was present also in the blood and other organs. We have produced the disease in a monkey by injecting an emulsion of the regional (axillary and inguinal) lymphatic glands, communicating with a nodule caused by a subcutaneous injection of the virus, that had induced paralysis. Two other monkeys were inoculated at the same time: one from the spinal cord and the other from the local subcutaneous lesion. The former developed paralysis and the latter is still well.

The degree of resistance of the virus is being studied. It has been determined that the spinal cord from a human case (Keefe) of poliomyelitis retains its virulence, apparently unimpaired, on being kept frozen at 2 to 4 C., in the Frigo apparatus, for a period of at least forty days; and when kept also for at least fifty days at a temperature about +4 C., during which time the latter specimen of spinal cord became slowly softened through autolysis and overgrown superficially with mold. These experiments have a bearing on the epidemiology of the disease and indicate that the cessation of the cases of the disease which occurs with the onset of cold weather does not depend on the destruction, although it may have to do with an effect on the multiplication, of the virus.

Moreover, the spinal cord of an affected monkey still transmits the disease, after having been suspended for at least seven days, over caustic potash, in a desiccator.

The activity of filtrates has been confirmed, and the possibility of their action being due to soluble toxic bodies and not to living organisms has been excluded by transferring the disease by means of the spinal cord obtained from the monkey that succumbed to a filtrate.

Can the virus be cultivated artificially? Portions of a bacteria-free filtrate were inoculated into bouillon containing 10 per cent. of rabbits' serum which had been rendered perfectly clear and sterile by being put through a Berkefeld filter; 1 c.c. of the filtrate was mixed with 9 c.c. of the bouillon and incubated. On the second day the fluid in the upper half of the tube was cloudy; the turbidity increased, and on the fourth day the fluid was used for inoculation into a monkey which developed

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] The Journal A. M. A., Nov. 13, p. 1639; Dec. 4, p. 1913; Dec. 18, p. 2095, 1909.

paralysis on the thirteenth day. A single loop of this turbid fluid did not set up turbidity in other tubes of the same medium.

A second series of cultivation tests, which is still in progress, has been carried out with a human ascitic-fluid bouillon made perfectly clear by filtration through Berkefeld filters. Perfectly clear filtrates, prepared from the spinal cord of affected monkeys, added to the ascitic-fluid bouillon, develop turbidity in the thermostat in twenty-four hours or less, and this turbid fluid inoculated into fresh clear tubes of the same medium causes them to become turbid. The clear filtrates do not produce turbidity, on incubation, in simple bouillon. None of the turbid fluids contained bacteria that could be seen under the microscope or cultivated in nutrient agar, and the dark-field microscope showed no definite bodies.

In a few instances in which parallel injections were made into the subcutaneous tissues and the brain, the monkeys inoculated in the first way developed paralysis and the other escaped infection.

Does an attack of epidemic poliomyelitis followed by recovery afford immunity to reinfection? Experimental poliomyelitis in monkeys is a very severe disease and, in our series, it has caused death in fully 40 per cent. of the inoculated animals that developed paralysis. When recovery occurs, residues of paralysis remain, and when death occurs or these animals are killed some weeks later, atrophy of the gray matter of the spinal cord, corresponding to the paralyzed limbs, is present. We have reinoculated several of the recovered monkeys and have noted in some instances failure of the virus to act while causing paralysis in the control monkeys. A single example will be given:

Monkey 45 was inoculated into the brain on Nov. 6, 1909; on November 13, tremulous and sick; on November 15, left leg was weak. Next day the leg was paralyzed. On November 24 general health was good, but paralysis persisted. On November 30 health was excellent except for paralysis. On this day the animal was reinoculated, together with two controls. Both of the latter became paralyzed, but the reinoculated animal has remained well.

Can the course of an intracerebral inoculation be modified by the simultaneous injection beneath the skin of a virus altered by heating? In seeking for facts relating to artificial protection from or resistance to infection, a considerable quantity of an emulsion of virus-containing spinal cord, which had been warmed to 55 or 57 C. for one hour, or to 60 C. for half an hour, was injected beneath the skin at the same time that a usual intracerebral injection of virus was given. The two monkeys employed in the experiment developed paralysis in the usual manner.

Brief mention should be made of other species of animals that have been employed for inoculation. Besides many rabbits and guinea-pigs, 1 horse, 2 calves, 3 goats, 3 pigs, 3 sheep, 6 rats, 6 mice, 6 dogs and 4 cats have had active virus introduced into the brain, but without causing any appreciable effect whatever. These animals have been under observation many weeks.

In the literature on epidemic poliomyelitis in human beings, reference is made to sensory cutaneous disturbances. We have found lesions similar to those present in the spinal cord and brain in the intervertebral ganglia, obtained from the paralyzed monkeys, in every instance in which we have looked for them.

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BARIUM CHLORID POISONING

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History.—An employee of the Holly Sugar Company, Holly, Colo., feeling the need of a cathartic, visited the chemical laboratory of the company and swallowed what he supposed was one and one-half drams of Rochelle salts, but which in reality was barium chlorid. This was at 2 p. m. Inside of thirty minutes he was attacked with violent nausea and vomited twice a very large quantity, which he said was mostly undigested food, he having partaken of a heavy meal just prior to the ingestion of the supposed salts. Three bowel movements, large and loose, followed immediately. He then rode half a mile to his room and was again attacked with vomiting and purging of an intense character, so violent in fact that he made no attempt to keep count of the number of movements. At this time, about 3 p. m., he was seized with a violent pain in the left side, over the sigmoid flexure, and retraction of both testicles. This lasted only a few minutes, and as the patient was feeling easier, no physician was called. During this time the kidneys were very active, moving freely and often. At 5 p. m. the patient noticed a sudden inability to move his limbs, rapidly extending over his arms and trunk, and, at last being alarmed, summoned Dr. O. W. Swope of Holly. Dr. Swope examined him a few minutes later, finding his condition as follows:

Examination.—Pulse 38, forcible; respirations not counted but breathing labored and irregular; temperature, 95 2/5; pupils dilated; total paralysis extremities and trunk. Morphin gr. 1/20 and strychnin gr. 1/30 were administered, hypodermically: No history could be obtained pertaining to any old or recent disease, and no suspicion was entertained of his having taken any medicine other than the Rochelle salts which he had intended to take, until the proximity of the barium chlorid bottle and the exclusion of any acute pathologic condition causative of the symptoms, sugested the possibility of barium chlorid poisoning. As the patient was without a nurse, no record was kept of his condition during the night and the next morning, but the patient was constantly nauseated and the bowels moved often. By noon the next day, on his arrival at the hospital in this place, his condition was as follows: Pulse, 64; temperature, 95 3/5; respiration, 30, shallow and interrupted. Patient could swallow with difficulty; extreme nausea but no vomiting; no bowel movement for six hours; not a muscle of his body could be moved; control of sphincters was normal.

Treatment and Course of Case.—A stomach lavage of boracic acid solution was used to relieve the nausea, if possible, and a high enema, four ounces of epsom salts in one quart of water, given. The abdomen and spine were surrounded with hot water bags, strychnin, gr. 1/30, administered hypodermically, and the whites of two eggs in four ounces of water ordered given every two hours. At 3 p. m. temperature was 97 2/5, pulse 86, intermittent. Strychnin gr. 1/30 given hypodermically. At 7 p. m. temperature was 97 4/5, pulse 86, regular and full. At this time the stomach lavage was again employed and a high enema of four ounces of magnesium sulphate in one pint of water given; also strychnin, gr. 1/30. Urinalysis showed a specific gravity of 10:26 with albumin 0.1 per cent. At 9:30 p. m. the patient began to move the fingers; at 11 o'clock he could move the arms; at 11:30 he turned over in bed, and at 1:30 a. m. he was able to move any part of the body. At 6 a. m. he was given half an ounce of epsom salts by mouth and egg albumin was ordered for every hour during the day. At this time temperature was 98 and pulse 76. Temperature reached normal by noon of the same day. The following morning he was given a light breakfast, and as this was found to agree with him a full diet was given thereafter. The patient was then discharged.

It is questionable, of course, whether the late employment of such simple remedies as were used had any effect on the recovery of the patient or whether he was saved by the facts that the stomach was full of albuminous food at the time of the ingestion of the drug and that the latter was immediately rejected from the body by vomiting and purging. Magnesium sulphate, by enema, as concentrated as possible, was used on account of its being the chemical antagonist of barium chlorid.

Shoemaker states that 2½ grains of barium chlorid have caused death when given in divided doses. The U. S. Dispensatory mentions two cases. In one, in which 60 grains were taken, the patient recovered; while in the other death followed the taking of 300 grains in five hours. I have been unable to find any other references in a number of available works on materia medica. I find that the weight of the one and one-half drams, by measure, taken by this patient, would be approximately 250 grains.

CHRONIC SUPPURATIVE PAROTITIS CAUSED BY THE STREPTOCOCCUS MUCOSUS CAPSULATUS

REPORT OF A CASE

C. H. McKENNA, M.D., AND D. J. DAVIS, M.D.
Surgeon and Pathologist, respectively, to St. Joseph's Hospital
CHICAGO

SURGICAL REPORT BY DR. McKENNA

The tumor in this case resembled, in contour, firmness and close connection with the ramus of the jaw, a sarcoma, but a positive diagnosis could not be made without the removal of a piece of the tissue for microscopic examination. In doing this a small amount of pus escaped from the depth of the gland and was sent to the laboratory for examination.

History.—Miss T. L. reported at the hospital complaining of a swelling in the region of the right parotid gland accompanied by severe pain in opening her mouth. The swelling had appeared three days previously (May 22, 1909). The family and personal history are negative except for the following points:

The patient had had measles and diphtheria. About twelve years ago an abscess had appeared on the right side of the face in the same region as the swelling mentioned above. This had been opened and drained by the family doctor. Since that time exposure to cold caused the patient pain and swelling in the same region and would last only a short time and then recede completely. The patient was always troubled with boils and carbuncles. The patient lives at home and works downtown as a clerk. She gets very little exercise, arises early and retires early; she does not eat much and very often skips her meals. She uses tea and coffee moderately.

Examination.—Negative except the above-mentioned swelling, which was a solid, spherical tumor situated in front of the ear and extending over the upper ramus of the jaw on the right side and so intimately associated with the jaw-bone that for a time it was thought that there might be a connection between the two. The patient was treated at the hospital for one week before being operated on, during which time an attempt was made to reduce the swelling by hot compresses frequently applied. The mass was so persistent that it was decided that it should be opened and a piece removed for examination. The report of this examination by Dr. Davis follows. The wound was drained for one week and the patient made an uneventful recovery.

BACTERIOLOGIC REPORT BY DR. DAVIS

In smears obtained from the operation wound Gram-positive diplococci and short chains were found in small numbers outside the many polymorphonuclear cells present. Cultures made on plain media give a pure growth of an organism presenting all the characteristic features of the *Streptococcus mucosus capsulatus*. It was Gram-positive, non-motile, arranged in pairs or in short chains and possessed a definite capsule. The growth in twenty-four hours on blood-agar slants was raised, moist, profuse and mucoid in character, and when left in the incubator forty-eight hours the slimy mass largely disappeared, leaving a smooth shining surface. On blood-agar plates about the colonies was a distinct greenish halo. This organism was practically non-phagocytable *in vitro* by human leucocytes plus human serum, and three small loops in 1 c.c. of salt solution injected into the peritoneal cavity of a guinea-pig caused death in forty-eight hours. The organism was recovered in pure culture from the peritoneal serofibrinous exudate and the heart blood of the animal.

Pieces of the parotid gland from the region of the abscess were sectioned and presented evidence of a marked chronic inflammatory reaction. The gland tissue was infiltrated with large numbers of round cells and a few polymorphonuclear cells and considerable increase of the connective tissue in places occurred.

Encapsulated streptococci have been described by numerous observers. Howard and Perkins[1] were among the first to describe this organism and it was they who first called it *Streptococcus mucosus*. Schottmüller,[2] Newmann,[3] Richardson,[4] and Longcope[5] have all described organisms which probably are identical with this streptococcus. Buerger[6] has recently given a good review of the subject.

This organism not infrequently occurs in the sputum in various throat and lung infections, especially croupous pneumonia, and is commonly found in ear discharges in otitis media, which explains its relative frequency as the cause of acute meningitis. Of seven cases of infection with this organism reported by Schottmüller, three were acute meningitis. I have isolated it in pure culture in a case of meningitis following otitis media and have cultivated it from the throat in cases of acute articular rheumatism, lobar pneumonia, "grippe," and from the ear discharge in otitis media. Longcope obtained it from an abscess in the breast wall and from the blood in a case of lobar pneumonia, and Howard and Perkins from an ovarian abscess and the organs post-mortem. It evidently may localize in various parts of the body, though preferably it localizes in the respiratory tract or its accessory structures. I have not been able to find reported other cases of chronic suppurative parotitis due to this organism.

100 State Street—839 Lakeside Place.

PERFORATING ULCER OF THE SIGMOID—A SEQUEL TO MEASLES

J. C. MURPHY, M.D.
ST. LOUIS

Involvement of the intestinal tract in measles is by no means an unusual complication, diarrhea and dysentery being occasionally seen. In a careful review of the available literature found in the library of the New York Academy of Medicine, I failed to find any record of intestinal perforation in this disease; but it is logical to presume that it could occur. Various authors state that post-mortem findings have shown Peyer's patches to present the same ulcerated condition found in typhoid fever. Dawson Williams,* of London, in speaking of gastrointestinal complications of measles, mentions a case in which dysentery occurred and post-mortem examination showed intense enterocolitis of sigmoid and rectum, with ulceration identical with that seen in true dysentery.

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[1] Howard and Perkins: Jour. Med. Research, 1901, vi, 163
[2] Schottmüller: Med. Wchnschr., 1903, l, 909.
[3] Newmann: Centralbl. f Bakteriol., 1904, xxxvii, 48.
[4] Richardson: Jour. Boston Soc. Med. Sc., 1900-01, v, 499.
[5] Longcope: Univ. Penn. Med. Bull., 1902, xv, 51.
[6] Buerger: Centralbl. f. Bakteriol., 1906, xli, 314.

* Williams, Dawson: Twentieth Century Practice of Medicine, xiv, 145.

REPORT OF CASE

History.—A. S., farmer boy, aged 14, one of several children, had had good health until he became sick with measles in February, 1909. The attack was of unusual severity with marked gastrointestinal complications, dysentery persisting after the usual symptoms had disappeared. The dysentery ultimately ceased and was soon followed by symptoms consisting of pain, increase in size of abdomen, nausea, fever, and constipation, which seemed to the observer to indicate intestinal obstruction. I was called by the attendant on March 5 to operate for a supposed intestinal obstruction.

Examination.—Patient's temperature was 104, pulse 120; appearance indicated sepsis; abdomen was enormously distended; there was complete dulness from one iliac crest to the other, and from umbilicus to pubes.

The examination did not suggest intestinal obstruction to me. The boy's condition being critical and the nearest hospital sixty miles away, I undertook the operation amid very dirty surroundings, two other children being sick of measles in the same house, which contained three small rooms.

Operation.—After such preparations as were possible, the boy was placed on the kitchen table, and after the usual toilet of the operative field the abdomen was opened by a median incision, which was followed by the discharge of huge quantities of pus and fecal matter. The abscess cavity, however, was well walled off. After cleansing the cavity a ragged hole was seen in the sigmoid, large enough to admit two fingers. The opening in the bowel was surrounded by an indurated area, such as one finds in ulcer. On account of the considerable destruction of tissue, and for fear of disturbing the adhesions, no effort was made to suture the bowel. The cavity was wiped clean and drainage established.

Postoperative History.—The patient was put to bed in good condition and placed in the Fowler position. The subsequent history was uneventful, the bowels moving normally on the second day. The after-treatment was left to the attending physician. I saw this boy about three weeks after the operation, the abdominal wound was practically healed, bowels moving normally and general health good. It is now over eight months since the operation; the patient is in perfect health with no symptoms of cicatricial stricture of bowel which I feared might occur. The apparent rarity of bowel perforation in measles prompts the report of this case.

4263 Morgan Street.

DIVERTICULUM OF THE STOMACH

JOHN M. LITTLE, M.D.

BOSTON

In a clinic characterized by a large percentage of digestive disturbances, I have found it easy to distinguish a certain number in which the symptoms were due to gastric or duodenal ulcer. This statement I make, because in all cases in which operation has been performed on this diagnosis, I have demonstrated the ulcer on the table. The following case is reported because of the definiteness and simplicity of the symptoms, their difference from the symptoms of the more usual conditions, and their complete explanation by the pathologic findings at operation. These last may be briefly described as narrowing of the pylorus and diverticulum of the stomach caused by stretching of its wall, the whole being due to the scar of an old ulcer completely healed.

History.—A. B., aged 56, fisherman (Hosp. No. 457), was subject to indigestion for some years but two years ago began to have severe pains in epigastrium after eating. At times he would vomit, very bitter substance; and the vomiting gave immediate relief. Otherwise the pain would last perhaps from fifteen minutes to half an hour. Since then he has eaten only liquid food. The eating of anything solid always causes this pain, which is unbearable. He has always been well and healthy in every other way.

Physical Examination.—A well-developed and nourished healthy looking man. Physical examination shows nothing abnormal. He shows the epigastrium to be the seat of the pain and says there is tenderness there at the time the pain is there. There is now no tenderness on deep pressure.

Operation.—Oct. 18, 1909, after the usual preparation, the patient was operated on under ether anesthesia. The stomach, the capacity of which was normal, was washed out on the table. A four-inch incision was made in midline between ensiform and umbilicus. With the exception of the following condition, the abdominal contents were normal. There was a whitish-looking scar running from the upper part of pylorus downwards and to the left along the anterior stomach wall. To the right of this was what I took at first to be the duodenum but which turned out to be a diverticulum of dilated stomach wall, lying in front of the duodenum and capable of holding about six ounces. There were no adhesions or palpable thickenings of the walls. The stomach was opened by an inch incision on its anterior aspect. The finger carried forward, toward the pylorus, entered a ring of tissue which just admitted it. Feeling around, the finger entered another ring, which just barely admitted it. This latter turned out to be the pylorus lying behind and above the former, which was the opening into the diverticulum. Inspection showed no ulceration of the mucous membrane, which looked normal. With a finger in the pylorus, an incision an inch and a half long was made in the pylorus extending (longitudinally to axis of stomach) from the duodenum across the pylorus into the diverticulum. This incision was then sewed up transversely to the axis of the stomach. This pyloroplasty caused, at the same time, enlargement of the pylorus and drainage of the diverticulum. The hole in the anterior wall was then closed in like manner by an over-and-over stitch through all layers, followed by a continuous Lembert suture. The abdominal wall was closed by layers.

Recovery was uneventful. The patient has been on ordinary diet and has had no symptom since.

317 Dartmouth Street.

APPENDICITIS DUE TO THREADWORMS

T. H. CULHANE, M.D.

ROCKFORD, ILL.

The patient, a married woman aged about 21, suffered with intense pain at McBurney's point, together with intense nausea. She had no desire for food and, when food was taken, it was immediately rejected. On Sept. 8, 1909, about two weeks after I first saw the patient, I operated, removing the diseased appendix. The contents of the appendix were forcibly expelled on my finger, and live worms could be seen crawling therein. The appendix contained about eighteen threadworms. The mucosa of the appendix was congested and thickened, and contained many punctate hemorrhagic spots. The patient made a good recovery.

1025 South Main Street.

APLASIA OF THE UTERUS

CHARLES L. PATTON, M.D.

SPRINGFIELD, ILL.

Several years ago I reported[1] a curious malformation of the internal genitalia in a child, classifying the malformation as either pseudohermophrodismus masculinus externus or bilateral inguinal hernia of the ovaries with aplasia of the uterus. Since reporting this case I have seen two other cases in which I was unable to detect a uterus. Neither of these presented the condition found in the labia majora in the reported case, but both gave evidence of a marked interference with the development of the internal organs of generation.

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[1] Patton, C. L.: Case of Malformation of the Internal Genitals with the Reproductive Glands in the Labia Majora, Am. Jour. Obst., October, 1904.

Second Case.—An Italian woman, aged 34, married, housewife, was seen by me with another physician, March 7, 1906. Her family history was without interest, so far as we were able to determine, for it was difficult to converse with her, since she spoke no English and her husband was, at best, a poor interpreter. The patient sought medical advice on account of a pain in the right side and to ascertain the reason for never having menstruated.

She stated that every four weeks she felt tired and complained of feeling sore all over. She had severe backache at this time. At 15 she had a hemorrhage from the lungs. There was at the time of examination no evidence of lung involvement. The patient's temperature was 99½. On abdominal palpation nothing was elicited except a slight tenderness on the right side in the region of the appendix. The external genitals, to all appearances, were perfectly normal for one of her age. The vagina was small in circumference and terminated in a blind pouch two inches from the introitus. No cervix could be detected by palpation or speculum examination. Vaginal and rectal examination revealed no uterus. It was impossible to outline the ovaries. The inguinal canals were free. The patient's habit, appearance, voice and breasts were distinctly feminine.

Third Case.—Mrs. A. L., referred March 18, 1909; married, white, aged 32. The family history is negative. The patient's physician states that the patient suffered from tuberculosis four years ago but that she has since made an apparent recovery. At the time of this illness her weight fell to 109 pounds. She had "spasms" when a young child but was not troubled with this difficulty subsequent to that time until last January, during which month she had three attacks. In each instance these attacks came on at night and occurred during sleep. She cried out, bit her tongue, foamed at the mouth, spit blood and had general convulsions. The actual spasm lasted but a short time, after which she went into a deep sleep from which it was difficult to arouse her. She states that she knew nothing of these attacks until told of them the next morning.

The patient had been married eight years and has been very anxious to have children but she has never been pregnant. Her menstruation first appeared at the age of 12 and has been regular and of the four-week type. She flows for four or five days, without pain, and passes a normal amount of menstrual discharge. She passes small clots occasionally. She has had a constant leucorrhea for years. It is small in amount, without odor and is thin and yellow for the first few days following menstruation, when it becomes thick and sticky.

The patient consulted her physician to engage him for her confinement. She states that she has not ceased to menstruate but that she has become progressively larger and that she has felt fetal movements. She has had no nausea or vomiting but she has been nervous and has had "abnormal cravings." She thinks that she is about six months pregnant and she has her layette complete.

The patient is of medium build, normal in appearance and has good musculature and a fair amount of panniculus. She weighs 149 pounds.

The abdomen is symmetrically distended from the pubes to two inches above the umbilicus. Palpation reveals no tumor and the abdomen is everywhere tympanitic. The abdominal walls are soft and easily depressed with the palpating hand. The breasts are pigmented and the follicles slightly enlarged. The chest is negative.

The vulva is entirely normal for a woman of her age and the pubes are covered with hair as in a normal woman. The hymen is ruptured but the perineum is intact. There is no bluish tinge to the vagina.

The vagina is shallow but of normal circumference and the examining finger comes in contact with the vault without encountering a cervix. No uterus can be detected by bimanual examination through the vagina or rectum. Both ovaries are easily palpated and are apparently normal in size and position. Speculum examination reveals no cervix, but at the vault where the cervix should be located are two small depressions that have an appearance similar to that of the ureteral openings as viewed through a cystoscope. A filiform probe can be passed through these openings for about two inches. The tissue surrounding these openings differs in no way from the mucous membrane of the rest of the vaginal canal.

These malformations have, for many years, been a subject of interest to the embryologist and to the clinician. Many classifications have been made, but none, I think, is more satisfactory or less cumbersome than that of Müller, which I give here briefly:

1. Defectus uteri.
2. Uterus rudimentarius.
3. Defectus cervicis uteri et cervix uteri rudimentaria.
4. Uterus unicornis.
5. Uterus unicornis cum cornu rudimentaria.
6. Uterus bicornia.
7. Uterus bilocularis.
8. Uterus didelphys.
9. Hypoplasia uteri.
10. Slight developmental anomalies of the uterus relating to position, abnormal plications, etc.

Many of the cases reported in literature as cases of "defectus uteri" or complete absence of the uterus are wrongly classified. This condition is rarely encountered in the living, although it is not uncommon in monsters. Other gross defects in the organism are usually found in connection with this malformation. Many of the cases reported as defectus uteri cannot be accepted because no autopsy was performed and the condition was diagnosticated by physical examination of the patient alone. In these cases one may be unable to palpate a uterus, but in the vast majority there are masses of microscopic or macroscopic uterine tissue found at autopsy, occupying the region that the uterus should occupy. These cases should be classified under the heading of "uterus rudimentarius." Many grades of this condition may be seen, varying from microscopic bits of uterine tissue on the posterior surface of the bladder to macroscopic masses resembling in shape the normal uterus, but very much reduced in size. In all probability Cases 1 and 2, reported above, belong to this class.

In cases of "defectus cervicis uteri" the entire cervix is absent or is represented by a narrow fibrous band replacing the normal structure. The vagina is normally developed or there may be an atresia of the upper portion. The uterus is represented by a cord or band of tissue or in some other way shows a marked error in development. The third case of this series certainly comes under this division, although I have been unable to find a similar case in literature.

I report this case not for the interest attached to it alone, but that it may be on record for others who are interested in the subject of uterine malformations.

The third case appears to me to be unique for the following reasons:

1. Clinically there is an aplasia of the uterus.
2. There is an entire absence of the cervix.
3. The ovaries are apparently normal in size and position.
4. Menstruation has been normal in amount, regular and free from pain, despite the gross defect in development of the uterus.
5. The tubes, or the bodies of an extremely small didelphic uterus, open directly, by separate openings, into the vagina.
6. There is a pseudocyesis.

Cases coming under the remaining heads of Müller's classification are more frequently met and more nearly approach the normal.

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MENTHOL TREATMENT OF SCREW-WORM

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While it is true that cases of screw-worm from the fly *Compsomyia macellaria* are rare in the United States, still they do exist and are exceedingly resistant to the treatment outlined in the text-books.

The infection is invariably complicated by the pre-existence of an atrophic rhinitis or an ulcerated condition, permitting the larva—screw-worm—to burrow, and thus escape the action of most solutions used to dislodge and destroy it.

Chloroform (in solutions used as a spray and inhalant) is satisfactory and sure for the worms that are hatched and lying in the open, but it does not penetrate sufficiently, neither is its action prolonged enough to destroy the worm, after it has burrowed into the diseased tissues from an atrophic rhinitis, or the egg while it is being hatched.

A thorough curettage of the nasal passages may be done under general anesthetic, but at considerable risk of rupturing blood-vessels and thus affording opportunity for entrance of an embolus or spreading infection to surrounding cavities, in some cases producing death.

After struggling vainly with chloroform in varying solutions—from 20 per cent. to pure chloroform—and thus relieving the patient of some two hundred worms in several treatments, I discovered that the number of worms still increased daily. I therefore realized that I was but collecting the day's hatch, as no worms were visible after using a chloroform spray and picking out the resultant dead ones. Inspired by a recent article on the eradication of the hookworm by the use of menthol, I therefore instituted a treatment with sprays of menthol. Preceding the menthol, peroxid of hydrogen was sprayed into the nose two or three times, the patient blowing his nose freely between applications. Then a 20 per cent. solution of menthol was sprayed into the nostrils very thoroughly under twenty pounds' pressure. Usually within half an hour numbers of the worms were expelled, and in three days, after spraying twice daily, they ceased altogether and showed no return.

Weak solutions were first used but proved useless. The nasal tissue that is in condition to permit growth of this parasite has lost all sense of pain, thus permitting the use of strong solutions.

Therapeutics

[**EDITOR'S NOTE: The following is the first of a series of five articles by Professor Osborne on the revision of the Pharmacopeia. These special articles will take the place of the regular therapeutic matter, which will be resumed on the completion of this series.**]

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

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1. Let the new Pharmacopeia contain such drugs only as are of positive therapeutic value.

2. When a drug or preparation of a drug is prescribed that is not official in the Pharmacopeia of 1910, let it be officially declared that the standard of purity and the method of making preparations not recognized in the Pharmacopeia of 1910 be the standard set and the methods of preparation ordered in the last Pharmacopeia in which the preparation was recognized.

3. Let it contain such new drugs as have been proved of therapeutic value.

4. Let there be issued a supplement to the Pharmacopeia, in 1915, which shall make official such new drugs as have been proved to be of therapeutic value during the years of 1910-1915.

5. Let the 1910 Pharmacopeia give the most simple titles possible to all new drugs, especially to the synthetic drugs. If it is considered impossible, or inadvisable, to make an official title of a drug simple, an official abbreviation should follow the name of the drug.

6. Let the 1910 Pharmacopeia give official approval to only the best of the preparations of the official Galenic drugs, and not officialize the little used and useless preparations of these drugs.

7. Let the 1910 Pharmacopeia not give official approval of all of the known salts (of iron and mercury, for instance), but officialize only the best. (The Committee on Revision can just as well decide this question as it can decide the new drugs that are worthy of a place in the United States Pharmacopeia, or as it can decide the strength a tincture shall have, and certainly the tinctures were radically changed in the 1900 U. S. P., whether everyone was pleased or not.)

8. Let the average adult dose appear after each drug and each preparation of it, not the range of dose, i. e., minimum to maximum, as there is no exact under or over limit of dose. The dose is enough to accomplish the object aimed at by the prescriber, and all he cares to know is the average dose.

9. As the U. S. P. gives the official titles of drugs in Latin, it should also give the genitive after each title. This would be of especial value in teaching the correct writing of prescriptions. It is not always easy to determine the declension to which a Latin noun belongs, or whether it may not be indeclinable.

10. Let the official preparations of a drug be enumerated under the title of that drug.

DUSTING POWDERS

The dusting powders may be named as acetanilid combinations, bismuth preparations, boric acid alone or combined, various preparations containing iodin in some form, and the more simple powders, such as lycopodium, talcum, zinc oxid and zinc stearate.

It would seem hardly necessary, with all of the powders that are official, to prescribe, for a dressing, one that is not official. But even among physicians there is a tendency to appeal to the unknown and the mysterious, hoping that a lauded proprietary powder will heal a wound more quickly than something the ingredients of which is known. This is probably the reason that so many nostrum powders are prescribed. It should be remembered that dermatol is official under the name of bismuth subgalate, and that aristol is official under the name of thymol iodid (thymolis iodidum). The following simple combination is probably as good a drying antiseptic powder as can be ordered:

℞.	gm.	
Acidi salicylici	1	gr. xx
Acidi borici	49	or.
Talci	50	āā, ℥ii

M. et Sig.: Use externally as a dusting powder or dressing.

It should be declared, although by some surgeons it will be considered a heresy, that the intensely obnoxious iodoform dressing is unnecessary for the healing of wounds or the cure of disease. It will not kill germs, although it may, like any other dry dressing, inhibit their growth or development. It is a good deal like the zodiacal cross on the tail of the ℞ in recipe, and is used after an operation as an invocation to the gods that the wound will speedily heal. To stigmatize with the odor of iodoform a walking patient is beyond excuse; almost permanently to perfume a private residence with iodoform seems hard to defend; to iodoformize a hospital permanently seems unnecessary.

The only excuse for the use of iodoform seems to be in an oil emulsion as an injection into tuberculous joints or tendons. In such use there is no obnoxious odor exúded or wafted about by the patient.

To have a physician's office, his clothing, his operating bag, and his obstetric bag reek with iodoform seems, in this advanced age of estheticism, indefensible.

There are many inodorous iodin synthetic dusting powders. If any one has been found by a large number of physicians and surgeons to be an improvement on the official thymol iodid (aristol) they should report such to the Committee on Revision of the Pharmacopeia, asking that the committee consider making it official in the Pharmacopeia of 1910.

OINTMENTS

The Pharmacopeia and National Formulary make official 60 cerates, ointments, salves, mulls, petroleums and collodions. A physician should be able to select from this large mass of official greases those that he desired to use, without recourse to proprietary articles. The United States Pharmacopeia alone contains 6 cerates and 24 ointments. As our criticism is now on the United States Pharmacopeia, which is about to be revised, the question of whether or not all these cerates and ointments are needed, in our aim to reduce the bulk of the Pharmacopeia to scientific and sensible utility, should be discussed. It is doubtful if the acetate of lead cerate, the resin cerate, and the compound resin cerate are needed. If they are but little used by physicians, surgeons or specialists, they should be omitted from the next Pharmacopeia.

There would seem to be no question that there are too many official ointments. The stramonium ointment is so similar in its action to the belladonna ointment that it might well be omitted.

If there is any reason why the ointment of galls is better than the ointment of tannic acid, it must be because it is milder. It would seem, then, that the tannic acid ointment could be diluted by the prescriber to meet the astringency desired, and the ointment of galls omitted from the Pharmacopeia.

There are six ointments of mercury. It surely does not seem that all are needed. The official unguentum hydrargyri dilutum is superfluous. The official unguentum hydrargyri could be ordered diluted to meet any strength the physician desired. The red oxid of mercury ointment will doubtless act, or could be diluted to act, similarly to the yellow oxid of mercury ointment. Or the yellow oxid of mercury ointment could be strengthened by prescription to suit the individual desires. Both such similar preparations seem unnecessary. The nitrate of mercury ointment is probably very rarely prescribed, and might well be omitted from the Pharmacopeia.

It has never been shown that potassium iodid ointment could have any activity. If iodin in ointment is desired, the official unguentum iodi is sufficient.

Iodoform ointment should certainly be omitted from the next Pharmacopeia. If iodoform is needed it may be prescribed in any strength, in ointment, which the surgeon desires. To officialize the ointment is superfluous.

The veratrin ointment should be omitted from the Pharmacopeia. It is dangerous to use and should not be made official.

The zinc stearate ointment seems unnecessary. The object of producing stearate of zinc is to have a powder that is oily and that will adhere to the skin. To put this powder into an official ointment would seem to be absurd. It can have no action different from the zinc oxid ointment. This ointment should, then, be omitted from the next Pharmacopeia.

ASTRINGENTS

All the vegetable astringents contain tannic acid, and the cause of the astringency is tannic acid. The only possible advantage of a nauseating vegetable astringent over tannic acid itself is that, as it contains resinous substances, it gradually gives off its tannic acid through a considerable length of the intestine; on the other hand, tannic acid, as such, forms tannates in the stomach and high up in the intestine, and the astringency is then lost to the remainder of the intestine. This advantage of the tannic-acid-containing vegetable drugs is equalled and surpassed by a number of non-official tannic acid preparations (and the Committee on Revision must decide which are best and which should receive recognition in the next Pharmacopeia), all of which have the advantage of not breaking up or being dissolved in acid media, therefore not causing the irritation to the stomach that tannic acid does, but slowly break up and dissolve in the alkaline media of the intestines. These preparations are much more elegant, pleasanter and easier to take, cause no disturbance of the stomach, and act more successfully as astringents in the intestine than do gambir (catechu), krameria (rhatany), kino, hemotoxylon, geranium, rubus (blackberry), quecous (white oak bark) and rhus glabra (sumach fruit). All of these named drugs and their preparations make about 26 articles that could well be left out of the new Pharmacopeia. This would decrease its bulk just so much and remove preparations that are absolutely not needed. Also, not all of the preparations of witch hazel are needed.

Gallic acid does not have the local astringent action of tannic acid; therefore, there is no advantage in using gallic acid instead of tannic acid when local astringency is desired. To expect tannic acid in any form whatsoever, or gallic acid in any form whatsoever, administered by the gastrointestinal canal, to act as an astringent after absorption, to stop either profuse secretion or internal hemorrhage, is to expect what may happen in the sequence of events, but will not happen from the action of these remedies. In other words, there is probably no internal astringent action from the small part of these drugs that may enter the blood. If it is thought that a tannic acid preparation will have such internal effect, gallic acid should be administered, as the part of tannic acid that is absorbed is generally absorbed as a gallate. A diminution in albuminuria after the administration of gallic acid, which sometimes seems to occur, is often a mistaken observation from some chemical condition of the urine not allowing the albumin to be precipitated by heat. The cold nitric acid test will disillusionize the supposed diminution of albumin after the administration of this drug.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, JANUARY 1, 1910

DEATHS OF PHYSICIANS IN 1909

During 1909 the deaths of 2,199 physicians in the United States and Canada were noted in The Journal. On the estimate of 135,000 practitioners, this is equivalent to a death rate of 16.29 per 1,000. The annual death rates as recorded in the previous seven years were as follows: 1908, 17.39; 1907, 16.1; 1906, 17.2; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. For the last six years, therefore, there has been only a slight variation in the mortality rate. The age at death varied from 22 to 100, with an average of 59 years 5 months and 29 days. The number of years of practice varied from one to seventy-nine, the average being 31 years 6 months and 22 days. The chief death causes were, in the order named: heart disease, cerebral hemorrhage, violence, pneumonia, nephritis and senile debility.

Causes of Death.—There were 429 deaths assigned to general diseases; 314 to diseases of the nervous system; 291 to diseases of the circulatory system; 186 to diseases of the respiratory system; 140 to diseases of the digestive system; 159 to diseases of the genitourinary system; 161 to violence, and 53 to unknown or vaguely-described causes. Among the principal assigned causes of death were: valvular heart disease, 212; cerebral hemorrhage, 191; pneumonia, 145; nephritis, 135; accidents and senile debility, each, 102; tuberculosis, 97; cancer, 75; suicide, 45; angina pectoris, 37; typhoid fever, 35; after surgical operations, 34; diabetes, 30; septicemia, 27; appendicitis, 24; anemia, 19; meningitis, 18; gastritis, 17; cholelithiasis and influenza, each, 16; paresis, 15; homicide, 14; arteriosclerosis, 11; erysipelas, 10; drug addiction, 9; locomotor ataxia, 8; tetanus, 6; and smallpox, yellow fever, anterior poliomyelitis and Asiatic cholera, each, one.

The causes assigned to the 102 accidental deaths were as follows: 21 to poison; 14 to falls; 13 to gunshot wounds; 11 to railway casualties; 10 to runaways; 8 to drowning; 6 to automobiles; 5 to street cars; 4 to burns; 3, each, to asphyxiation and fractures of hip, and one, each, to motorcycle, earthquake, lightning, and kick of horse.

The methods chosen by the 45 who committed suicide were: firearms, 21; poison, 19; cutting instruments, 3, and asphyxiation and strangulation, each, one. Of the 14 homicides, 12 were by gunshot, one victim was beaten to death and one was stabbed. Feuds or affrays were responsible for 5 of the homicides, and one murder was committed by a victim of alcoholic mania.

Ages.—Of the decedents, 21 were between 91 and 100 years of age; 183 between 81 and 90; 405 between 71 and 80; 475 between 61 and 70; 396 between 51 and 60; 297 between 41 and 50; 239 between 31 and 40, and 78 between 22 and 30. The greatest mortality occurred at the ages 68 and 70, in each of which 57 deaths were reported; at 59, when 56 deaths were recorded, and at 62, when 54 died.

Years of Practice.—By periods of ten years, the deaths were as follows: In their first decade 227 died; second decade, 373; third decade, 453; fourth decade, 444; fifth decade, 359; sixth decade, 239; seventh decade, 58, and eighth decade, 4. Of the latter, one had practiced 72 years, two 73 years, and one 79 years.

Military Service.—During the year, 356 physicians died who had taken part in the Civil War, and, of these, 118 were in the Confederate service. Of the Federal soldiers, 112 are recorded as medical officers. The veterans of the Mexican War numbered 3; 27 had served in the Spanish-American War, and 17 in foreign wars. The Medical Corps of the Army sustained a loss of 20 officers, past and present; the Navy lost 22, the Public Health and Marine-Hospital Service 7, the Medical Reserve Corps 2, and the United States Revenue Cutter Service, the Canal Zone, and the U. S. Indian Service, each, one. The deaths of 24 past or present acting assistant surgeons in the Army were reported during the year. The National Guard lost 22 by death during the year, of whom 5 had attained the rank of surgeon general. One of the deceased served for several years as surgeon general of a Central American republic.

Medical Positions.—Medical colleges lost 126 professors, lecturers and instructors during the year; hospitals, 295 members of staffs; municipalities and counties, 190 health officers or city or county physicians; and boards of education and school boards, 79 members. There were 21 deaths of members of state boards of examination and registration; 26 of members of state boards of health; 51 of coroners; 80 of members of boards of United States Pension Examining Surgeons, and 115 of railway surgeons.

Two of those who died had been members of Congress; 17 had been state senators; 49 members of the legislature; 41 mayors; 40 aldermen; 83 in civil or municipal offices; 18 had served as postmasters, 24 as editors; and 20 were medical missionaries, or ordained clergymen.

Among the more prominent dead of the year are:

Charles Denison, Denver, specialist on climatology.

William Tillinghast Bull, New York City, eminent abdominal surgeon.

Daniel Roberts Brower, Chicago, dean of the neurologists of that city.

Thaddeus Asbury Reamy, Cincinnati, pioneer gynecologist and obstetrician.

Phineas Sanborn Conner, Cincinnati, surgeon and teacher.

Thomas J. Happel, Trenton, Tenn., for many years secretary of the State Board of Health and a trustee of the American Medical Association.

Joseph Martin Emmert, Atlantic, Iowa, sanitarian.

Sarah Hackett Stevenson, Chicago, pioneer woman practitioner and teacher.

William Thayer Smith, Hanover, N. H., teacher and writer on hygiene.

William Biddle Atkinson, Philadelphia, for thirty-five years Secretary of the American Medical Association.

Frank W. Reilly, Chicago, one of the first to attempt to instruct the people in public hygiene.

THE DEFENSE OF MEDICAL RESEARCH

The need for meeting agitation hostile to medical research is manifest from what that opposition has already accomplished and what it is still striving to do. Through such hostile agitation there was passed in Great Britain in 1876 a legislative act placing on medical investigators certain well-defined restrictions. Work of the first importance has been stopped in Great Britain, and British medical men have been compelled to go abroad in order to carry on investigations of great practical value. The names of Lord Lister and Sir Lauder Brunton need only be mentioned as instances of medical men whose investigations were hindered by the British act.

In spite of the enforcement of such drastic legislation as was obtained in Great Britain in 1876, not the slightest diminution in the antivivisection agitation has occurred—indeed, Great Britain may be regarded as the center of it. There are no less than fifteen antivivisection societies in Great Britain, and every one of them advocates the abolition of the use of living animals for medical purposes. The British experience is, therefore, highly significant as to the probable future of this movement. Just as our forefathers had to carry on the long struggle which has resulted in the legalized use of human bodies for medical and surgical instruction, so are we concerned with a similar long struggle for freedom of medical research.

In England, about a year and a half ago, a society was formed to instruct the public regarding the benefits obtained through animal experimentation and the practical results to medicine and surgery obtained by this method of medical advance. Already it is believed that an important change in the attitude of the public has been brought about through this educational campaign.

It may seem to some who have not followed the agitation in this country that there is only a remote possibility here of any legislation which would seriously interfere with medical progress. This sense of security is, however, to a large extent unjustifiable. At least six antivivisection societies now exist in this country, actively engaged in efforts to secure restrictive legislation; one of them publishes a monthly paper, while the others confine themselves to distributing literature. This literature, in the form of pamphlets, leaflets and press articles, is sent widely to newspapers in parts of the country where proposals for legislation are being urged. At least two of the societies are well supplied with money; indeed, this year one of them was left ten thousand dollars for antivivisection agitation. Evidently so long as money is readily available for promoting hostility to the use of animals in medical research there will be the problem of meeting that hostility.

The conviction has grown in this country, as in Great Britain, that the proper method of repelling the attacks of the antivivisectionists is to enlighten the public regarding the use of animals for medical advancement and regarding the benefits to man's estate that have come therefrom. With this conviction as a basis there was appointed last year by the American Medical Association a Council on Defense of Medical Research. This council is composed of representatives of various medical sciences who live in widely separated parts of the country. During the past year the council has been actively investigating the conditions of animal experimentation in laboratories throughout the United States, has taken precautions against the abuse of animal experimentation and against misconceptions of the conditions and purposes of medical research, and has planned a series of papers which will serve to diffuse information among the public regarding laboratory procedures and the results of laboratory study of disease.

The results of the investigation conducted by the council will be reported during the present year. In this number of THE JOURNAL appears the first of the series of papers arranged by the council.

These papers, written by experts, will deal with the importance of animal experimentation in the development of various phases of medical science and practice. The series will include a consideration of the relations of animal experimentation to the treatment of diphtheria and tetanus, meningitis, rabies, smallpox, dysentery and cholera and typhoid fever, plague, tuberculosis, syphilis, tropical protozoan diseases, and diseases caused by metazoan parasites; the papers will likewise take up the contributions made by animal experimentation to our knowledge of disturbances of internal secretions, the physiology of the circulation, pharmacology, venoms and antivenins and the principles of serum therapy. The subjects of two papers will be experimental surgery, surgical technic and aseptic surgery. Others will discuss cancer research, the relations of animal experimentation to hygiene and sanitary science, including the diagnosis and control of contagious diseases, the economic importance of diseases which have been lessened by animal experimentation, the use of animals in cattle bureaus, the experience with animals in laboratories, the ethics of animal experimentation, the educational value of operations on animals, and the more complex interrelations of research and practice.

The purpose in gathering this large body of evidence regarding the conditions of animal experimentation, and the results that have been derived from it, is to place before physicians facts with which they can meet criticisms directed against the laboratories and the laboratory workers. These papers will show how methods and information used daily in medical and surgical practice have had their origin in experimentation. They will also make clear the manner in which abolition of animal experimentation, or serious interference with it, will definitely check or disastrously retard the progress of medicine in fields where there is urgent demand for more exact knowledge.

Those who are doing their utmost to hamper the activities of medical investigators are sending broadcast statements only too often quite inaccurate and misleading. Nevertheless, these statements are popularly regarded as fair accounts of the procedures which attend medical investigation. The agitators are making converts because their activities are not met by corresponding activities on the part of medical men, and because their statements are not contradicted by the information which medical men are in a position to offer. Laboratory workers, unfortunately, who best know the falseness of the charges, are yet without sufficient power to answer effectively. One reason is that these workers are not engaged in public affairs, but are primarily students. Furthermore, even when they do speak, their motives are questioned—they are declared to be under the necessity of advocating the practice which provides them with a livelihood. The only persons in a strong strategic position to defend research and to preserve the freedom necessary for unrestricted progress in the knowledge of disease are the practicing physicians and surgeons. They are able through their special training to speak with authority concerning the benefits derived from animal experimentation, for they are employing information thus derived in the daily treatment of the sick. They are also in a position to know the methods employed in medical laboratories to advance knowledge of disease. On the other hand, they meet, in the course of their duties, persons whose feelings have been harrowed by the tales of torture that the antivivisectionists put forth, persons of humane temper seeking for the facts. The laboratory workers must depend on the practicing physicians and surgeons to be interpreters of their work and the spirit in which that work is performed.

ANTITYPHOID INOCULATION

Inoculation or vaccination with killed typhoid bacilli is practiced principally in order to prevent the development of typhoid fever; it has also been used during the course of the attack in the hope that it would promote recovery. In either case the aim is to stimulate the physiologic mechanisms whereby the body protects and immunizes itself against typhoid bacilli.

In regard to the inoculation form of treatment of the established disease, it must be said that it does not rest on as substantial a basis as does inoculation for preventive purposes. As just stated, it is aimed to stimulate the processes of immunization, but it does not appear that sufficient account has been taken of the fact that abundant stimulation may be and usually is caused by the infecting bacilli in the course of the attack, and of the further fact that there is a distinct limit to the power of response. Moreover, the direct effects of such inoculation on the processes of antibody production have not been followed closely and experiments have not been conducted on animals to determine the effect of injection of killed bacilli after infection has taken place. The available results of this treatment are in no way decisive as to its merits, and for the present it may be dismissed as being in the tentative and experimental stage and as not adapted as yet for general use.

Inoculation with typhoid vaccine has been used also in the case of chronic carriers of typhoid bacilli in the hope that it would hasten the disappearance of the bacilli, but thus far, unfortunately, without the desired result.

On the other hand, antityphoid inoculation for preventive purposes is a perfectly rational procedure, fully warranted by the results of experiment, and at this time, we may say, by the results of experience also. That injection of killed typhoid bacilli in normal persons actually sets the machinery of immunization in full motion is shown by the subsequent appearance in the blood of newly formed and specific antibodies. At first the lysin was regarded as the most important of these antibodies; but now that distinction must be shared with the opsonin, while the agglutinin still is looked on as a measure rather than a means of immunity. It is, of course, quite possible that other antibodies of even greater importance than the lysin and the opsonin are called forth, but which we at present are unable to detect and to measure. The antibodies mentioned appear in an orderly and typical manner after inoculation; measurement of their concentration in the blood reveals that, after a period of latency of two or three days, there sets in a steady increase, which reaches its maximum on about the tenth to the twelfth day and is then succeeded by a slow and gradual return to low level. By repeated injection of bacilli at the height of the curve the production may be still further increased and prolonged. The lysin, opsonin and agglutinin usually appear to run parallel in the curve of immunization, but deviations have been observed, especially in the latter part of the curve. It is asserted that increase in agglutinin may persist for two years, but no systematic observations have been made to determine just how long the antibodies remain above normal after inoculation. There is, however, experimental evidence to the effect that the once immunized organism retains the power to respond with increased promptness and effectiveness to the corresponding infection, even if all the antibodies evoked by the primary immunization have disappeared from the blood.

We owe the working out of the details that make practicable the use of preventive antityphoid inoculations on a large scale to Wright in England principally, and to Pfeiffer and Kolle in Germany. The methods of Wright and of Pfeiffer and Kolle are essentially the same. Definite quantities of typhoid bacilli, killed by heating at 60 degrees C. for an hour or so, are injected subcutaneously, absolute sterility of the "vaccine" having been determined by cultural tests. Wright used twenty-four-hour to forty-eight-hour cultures in 1 per cent. peptone broth accurately neutralized, the single dose being seven hundred and fifty to a thousand million bacilli, determined according to the Wright method of counting. Pfeiffer and Kolle used twenty-four-hour agar cultures; two milligrams of which constitute one dose. In both cases the injections may cause practically the same local and general reactions. Soon after the injection some local swelling, pain and tenderness may develop with more or less enlargement of the regional lymph-nodes; in a few hours chilliness or distinct chills may ensue, followed by some fever, headache, general depression and weakness. As a rule these reactive symptoms last twenty-four to forty-eight hours, occasionally a little longer. The reactions are rarely severe, and, on the whole, the inoculations must be regarded as harmless. Various efforts have been and are being made to free the vaccine from its toxic properties without its losing any of its antigenic or immunizing powers, and we may look for substantial improvements in this direction.

It has been one of Wright's contentions that immediately after the inoculation, during the "negative phase," the anti-infectious powers of the body are reduced and the danger of infection consequently increased; hence special stress was laid on such adjustment of the dose that the negative phase could be eliminated so far as possible at the same time as good immunizing responses were obtained, and especially in case inoculations were to be given in the presence of a typhoid epidemic. In experiments on animals, however, Pfeiffer and Friedberger find that the general resistance to various infections is increased immediately after immunizing injections, and, judging from the experience with antityphoid inoculation, it does not appear that there are any good grounds for the fear that inoculation in the presence of epidemic typhoid may lead to undesirable consequences. The inoculations preferably are repeated twice, at intervals of ten days, the dose for the second and third injections being usually double that for the first. The reactions after the second and third injections are usually quite insignificant.

Extensive practical tests with antityphoid inoculation have been carried out among British and German colonial troops. Altogether nearly thirty-five thousand men have been inoculated, and the statistics show that the morbidity and mortality from typhoid fever have been very greatly reduced among the inoculated as contrasted with the non-inoculated. According to the last German report, the man who refuses inoculation is twice as liable to have typhoid as the man who accepts, and four times as liable to die of it. Particularly important are the latest statistics from the British service,[1] which show that for each case of typhoid fever in the inoculated there were ten among the non-inoculated, and that for each typhoid death among the inoculated there were ten among the non-inoculated. The death-rate from typhoid fever per thousand non-inoculated was greater than the incidence per thousand of the disease among the inoculated.

The protective efficacy of antityphoid inoculation consequently is firmly established, and no doubt its use will be greatly extended in the near future, especially, of course, in military services,[2] where the method, so to speak, originated and where there is such great need of means to control typhoid fever, but also in the efforts to limit the spread of typhoid fever wherever it occurs. Now that we understand the rôle of contact in the spread of typhoid fever, the need of protection in the household, in hospitals and institutions on the part of all who come in contact with typhoid patients or their belongings is quite self-evident. It is easy to see, too, that the danger from the chronic carrier of typhoid bacilli under special conditions might be materially lessened by inoculation of his intimate associates.

PRESERVATIVES AND PRESS AGENTS

Many and devious are the ways by which those who would "doctor" our food attempt to create public sentiment in favor of chemical preservatives. During the last few months a harmless looking letter signed "H. L. Harris" has appeared in the newspapers of those cities and towns in which deaths from ptomain poisoning (much-abused term) have recently been chronicled. This letter—we use the singular advisedly—does not vary in its wording in different papers, except for the opening sentence. It begins by referring to the death which the writer has seen reported in the paper written to, and then continues:

> "It is certainly appalling to learn how rapidly ptomain poisoning cases have increased since the enforcement of the pure food law. According to press dispatches there have been in the United States since the enforcement of this law 16,492 cases of ptomain poisoning, 573 of which were fatal. Prior to the enactment of the pure food law borax and boron compounds were used on meat, fish, fowl, sausages, oysters, etc., consequently such food, which readily becomes contaminated, was kept in a hygienic, healthful condition. . . ."

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[1] Leishmann, W. B.: Statistical Tables of Recent Results of Antityphoid Inoculation, Jour. Roy. Army Med. Corps, 1909, xii, 163. In this series the "vaccine" was prepared by heating to 53 C. for seventy minutes; it is said that "vaccine" so prepared does not lose so much of its immunizing property as that heated at a higher point.

[2] See the valuable article by Major F. F. Russell, Medical Corps, U. S. Army, on the Prevention of Typhoid Fever by Vaccination and by Early Diagnosis and Isolation, Military Surgeon, 1909, xxiv, 479.

And much more to the same effect. The letter closes with the suggestion that the law should be so amended "as to permit the use of modern non-injurious preservatives." Not only in the form of letters do we find these much-reiterated sentiments of Mr. Harris. Overworked editors occasionally use them *en bloc* to fill a gaping void on the editorial page. For instance, we find in the Alliance (Ohio) *Review*, Dec. 4, 1909, an editorial (?) entitled "Ptomain Poisoning," which begins:

> "A recent case of ptomain poisoning in Alliance has caused the thought that it is certainly appalling to learn how rapidly ptomain poisoning cases have increased since the enforcement of the pure food law. According to press dispatches there have been . . ."

And so on; the Harris letter *verbatim et literatim.* As many of our readers will remember,[1] the H. L. Harris who thus champions the cause of boron compounds as food preservatives is the press agent of the Pacific Coast Borax Company, sometimes called the "borax trust." Harris also writes under the name of "H. H. Langdon," and on the stationery which carries this name he calls himself a "Food Expert," although the New York City directory has him listed as a "journalist." He has for years, under one or the other of these names, been writing "articles" systematically attacking pure-food legislation in general and Dr. Wiley in particular. It would be well for physicians to notice with some care both the correspondence and editorial columns of their local newspapers when cases of ptomain poisoning have been chronicled. The chances of a pro-borax article appearing subsequently are good in proportion to the care exercised by the clipping bureaus which furnish the borax company with such news items, and the carelessness of the editors of the papers which accept the Harris-Langdon inspired communications—either for correspondence or as "editorials."

These articles are not likely to appear in the metropolitan dailies, because nearly all such papers belong to an association which furnishes them with lists of press agents. But it is the papers of the smaller towns that Harris-Langdon delights to dupe into printing his contributions in favor of chemical preservatives. It is in such towns that the wide-awake physician can do yeoman service in the interest of public health by enlightening those editors who, through no fault of their own, are, or may yet be, misled into giving free publicity in the interests of the sophisticators of foodstuffs. Of course, in those cases in which the editor calmly appropriates Harris' "dope" and prints it as his own, the physician will not be thanked for mentioning the fact—but the editor should be advised, just the same.

THE WORK CURE IN NERVOUS CONDITIONS

The treatment of neurasthenia, hysteria, and allied conditions is the subject of an article by Dr. H. J. Hall, in this issue of THE JOURNAL, which is especially interesting in that it shows what can be done by a general practitioner with sufficient interest in the subject to individualize. Undoubtedly, the value of work in the treatment of such conditions has been demonstrated more or less successfully in individual cases by many neurologists. Dr. Hall's article, however, deals with a more extensive trial under conditions especially arranged for the purpose. Rational occupation has been employed in the treatment of insanity for a long time, though it has not been employed so extensively as it deserves. We are apt to associate the "rest cure" with neurasthenia; indeed, that is popularly all that is considered necessary in that condition, and it is not to be supposed that the work cure will displace it completely except in selected cases. As Dr. Hall says, it is no more reasonable to suppose that such a complex remedial measure as work can be used successfully in haphazard fashion than that drugs can be so used. Whether or not the work cure can be advantageously separated from the regular sanatorium treatment remains to be seen, but his experience seems to bear out his assertions; it is probable that in the future existing institutions will make arrangements for this method of treatment, though purely industrial colonies may be established by general practitioners in various parts of the country. The occupation treatment may even become a fad and may require judicious curbing, as is the case with the physical-culture craze which is now running riot. On the other hand, institutions for the work cure—by being self-sustaining, so to speak—might be able to reduce the excessive charges now apparently necessary for treatment of nervous patients, and would be a boon to individuals in modest circumstances who need medical advice regarding their infirmities. A well-directed change of occupation with continuous medical oversight has decided value in many neurotic conditions. In cases in which the conditions approached actual insanity, the patients have been restored to health by judiciously selected work, while without it they would probably have become incurably insane.

STANDARDS OF MEDICAL EDUCATION

In his address before the last meeting of the Association of American Medical Colleges, the report[1] of which has recently come to hand, President Henry S. Pritchett of the Carnegie Foundation for the Advancement of Teaching, reviews briefly the conditions underlying medical education as he sees them. He calls attention to the fact, often ignored, that the public itself is vitally interested in the maintenance of good professional standards both of medical education and for license to practice. No matter what medical sect practitioners may join, they must be trained in the fundamental sciences which underlie all medical practice, such as anatomy, physiology, pathology and the like. He shows that the public cannot possibly differentiate between the various medical sects, and their only protection is to insist that the man licensed to practice shall be well educated and thoroughly grounded in the fundamental sciences. This should apply to all practitioners regardless of sect. For the interests of the public, therefore, medical education should be taken off the commercial basis and fair standards should be enforced. While it was probable that the medical school would eventually be associated with the university, President Pritchett calls attention to the harm done to the cause of medical education by the desire of some universities to have medical schools as a part of their organizations without due regard to standards. He points out *that many* colleges and universities are to-day lending the shelter of their charters and the support of their names to medical schools which are purely commercial, and that such a connection is a disgrace to any true college or decent university. President Pritchett says that "no college has the right to undertake a medical school unless it is to serve medical education and the betterment of medical practice. To undertake a medical school merely for the sake of institutional completeness or to be able to print a few more names in the catalogue is a betrayal of education. not a service-in its interests."

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[1] THE JOURNAL A. M. A., Oct. 23, 1907.

[1] Proc. Assn. Am. Med. Colleges, 1909, p. 19.

Medical News

ILLINOIS

Hospital Soon Ready.—The Whiteside Public Hospital, Sterling, is completed and ready to receive patients.

Wants State Sanatorium.—In the December Bulletin of the Illinois State Board of Health, the secretary, Dr. James A. Egan, makes a strong plea for the establishment of a state sanatorium for tuberculosis.

MARYLAND

Society Meetings.—At the annual meeting of Talbott County Medical Society, held December 22, the following officers were elected: Dr. Charles F. Davidson, Easton, president; Drs. Philip L. Travers, Easton, and Joseph A. Ross, Trappe, vice-presidents; Dr. Clifford M. Stelle, Cordova, secretary-*treasurer; Dr. James A. Stevens, Easton,* delegate to the Medical and Chirurgical Faculty; Dr. Charles H. Rose, Cordova, alternate; and Drs. Samuel C. Trippe, Royal Oak, William S. Seymour, Trappe, and S. Denny Wilson, Easton, censors.——Dorchester County Medical Society, at its annual meeting, held in Cambridge, December 14, elected Dr. Victor C. Carroll, Cambridge, president; Dr. C. Frank Maguire, Hurlock, vice-president; Dr. William H. Houston, Fishing Creek, secretary; *Dr. Benjamin L. Smith, Madison, delegate* to the Medical and Chirurgical Faculty, and Dr. Eldridge E. Woolff, Cambridge, alternate.

Baltimore

Personal.—Dr. Martin S. Sloan of the Louisville Sanatorium has been elected a resident physician of the Eudowood Sanatorium for Consumptives, vice Dr. Foster, resigned. ——Dr. Howard A. Kelly was thrown from his motorcycle December 23, receiving painful wounds and contusions of the head and arms.

New Cottage for Tuberculous Children.—Mrs. Henry Barton Jacobs will erect a new cottage for children at the Eudowood Sanatorium for Consumptives to cost from $10,000 to $15,000, dependent on the raising of a maintenance fund by the public. There are at present six children in the institution and the new cottage will accommodate about ten.

Trade Organizations Object to Sanitarian.—Dr. Marshall L. Price, secretary of the State Board of Health, has incurred the displeasure of the trade organizations, who suggest a druggist in his place. The seat of the discontent appears to be in the enforcement of the pure food bill. Dr. Price received his practical training in public hygiene under Dr. John S. Fulton, and under his direction, Maryland is being recognized as one of the most advanced states in the union in this regard. The Maryland system of control of tuberculosis has recently been adopted in New York and other states. The administration of the pure food law, while it unquestionably belongs to the state board of health, is not the most important part of the functions of that body.

City Will Take Over Tuberculosis Work.—The city of Baltimore, on January 1, takes over the tuberculosis work of Baltimore, which has been in the hands of the Instructive Visiting Nurses' Association for the past five years. The work will be under the care of the health department and the employment of fifteen nurses has been authorized by the board of estimates, and 1,700 patients will be turned over by the association. The city will be divided into fourteen districts with one nurse in each district, who will be held responsible for the cases therein, and for the inspection, fumigation, and removal, when necessary, *of furniture in case of death* from tuberculosis. She will instruct patients and friends as to the best methods of living, etc.

MASSACHUSETTS

Money for Hospital.—Frederick F. Ayer, New York City, sent a check for $50,000 to the Lowell General Hospital, December 14, making his benefactions to that institution $200,000.

Personal.—Dr. James A. King, Millville, is sepnding the winter in Berne, Switzerland, at the clinic of Prof. Dr. Kocher.——Dr. Kendall Emerson, Worcester, has been elected chairman of the committee on school hygiene, vice William H. Burnham, resigned.

Free Public Lectures.—The free public medical lectures which the faculty of the Harvard Medical School have given in recent years will be resumed January 2. They are given at the school on Saturday evenings at 8 o'clock and on Sunday afternoons at 4 o'clock. The subjects and the speakers for January are: January 2, Dr. F. P. Benedict: "The Influence of Mental and Muscular Work on Nutritive Processes" (illustrated). January 9, Dr. Maurice V. Tyrode: "What the Public Should Know About 'Patent Medicines.'" January 16, Dr. William T. Porter: "The Growth of School Children and Its Relation to Disease." January 23, Dr. Walter B. Cannon: "The Glands of Internal Secretion and Their Relations to Health and Disease" (illustrated). January 30, Dr. Clarence J. Blake: "Hearing and Speech." January 8, Dr. Milton J. Rosenau: "The Story of Vaccination." January 15, Dr. Calvin G. Page: "Clean Milk" (illustrated). January 22, Dr. John B. Blake: "Sprains, Strains and Fractures; Simple Facts of Diagnosis and Treatment" (illustrated), and January 29, Dr. John H. McCollom, "Smallpox" (illustrated).

MICHIGAN

Lodge Practice.—Oakland County Medical Society, at its last meeting passed by a vote of 32 to 5, an amendment to the constitution, stipulating that after January 1, *no member* may continue to do such lodge business and continue to be a member of the society unless he obtains for his compensation fees equal to those established by usage *in the community* in which he resides. This action was taken only after the House of Delegates of the state society *had passed a resolution* calling on county societies to take action directed against this abuse.

Annual Meetings of Societies.—At the annual meeting of Kalamazoo Academy of Medicine, held in Kalamazoo, December *13, the following* officers were elected: President, Dr. George F. Inch, Kalamazoo; vice-presidents, Drs. John B. Jackson and Orton H. Clark, *Kalamazoo, and George F.* Young, South Haven; secretary-treasurer, Dr. Charles E. Boys, *Kalamazoo*; censors, Drs. David J. Levy and Daniel H. Eaton, *Kalamazoo; delegates to the* state medical society, Drs. Leslie G. Rhodes, South Haven, and George F. Young, South Haven, *and alternates,* Drs. Edward P. *Wilbur, Kalamazoo,* and Labb.——Lenawee County Medical Society, at its annual meeting in Adrian, December 14, elected Dr. George H. Lamley, Blissfield. president; Dr. Oat Whitney, Jasper, vice-president; Dr. Artemus W. Chase, Adrian, secretary-treasurer; and Dr. Lucian G. North, Tecumseh, delegate to the state society.——At the annual meeting of Saginaw County Medical Society, held in Saginaw, December 16, the following officers were elected: Dr. Pearl S. Windham, Saginaw, president; Dr. William L. Dickinson, Saginaw, vice-president; Dr. J. Neil McLean, Saginaw, secretary-treasurer; and Drs. William F. English, Bert B. Rowe, and Elmore E. Curtis, all of Saginaw, directors. The society decided to cooperate with the state society in its plan for legal defense, and elected Dr. William J. O'Reilly, Saginaw, as a member of the joint committee for this purpose.——Menominee County Medical Society, at its annual meeting, held December 14, elected the following officers: President, Dr. Earl V. McComb; vice-president, Dr. Henry T. Sethney; secretary-treasurer, Dr. Calvin R. Elwood, and censors, Drs. *Robert G.* Marriner and Henry A. Vennema, all of Menominee.

MISSISSIPPI

Hospital for Meridian.—A movement has been inaugurated in Meridian by the trustees of the Mississippi Medical College for the establishment of a state hospital in that city. A site for the hospital has been donated adjacent to the college.

Colleges Open.—The fourth annual session of the Mississippi Medical College, Meridian, opened October 4. The opening address was delivered by Dr. William W. Hamilton, Meridian. Dr. George W. Stephens, professor of chemistry and toxicology, has been added to the faculty.——The opening exercises of the University of Mississippi Medical School were held September 3 at Vicksburg. Addresses were made by the governor, Chancellor A. A. Kincannon of the University, Dr. Dudley W. Jones, president of the state medical association, and others.

Medical Society Meetings.—The Tri-County Medical Society of Copiah, Lincoln and Pike held its annual meeting at Brookhaven, December 14, and elected the following officers: President, Dr. Thomas Purser, McComb; vice-presidents, Drs. James M. Dampeer, Crystal Springs, Oscar N. Arrington, Brookhaven, and Clark H. Rice, McComb; secretary-treasurer, Dr. Dudley W. Jones, Brookhaven, and censor, Dr. W. S. Lampton, Magnolia.——Warren County Medical Society held its annual meeting in Vicksburg and elected Dr. Sydney W. Johnston, Vicksburg, president; Dr. Vincent Bonelli, Vicksburg, vice-president; Dr. James H. Fox, Vicksburg, secretary-treasurer; Dr. B. Iverson Hicks, Vicksburg, censor, and Dr. W. B. Dougherty, Vicksburg, delegate to the state association. ——At its annual meeting in Greenwood, the LeFlore County Medical Association elected the following officers: President, Dr. William T. Mathews, Greenwood; vice-president, Dr. H. L. Shannon, Ittabena; secretary-treasurer, Dr. William B. Dickins, Greenwood, and delegate to the state association, Dr. Benjamin F. McNeal, Ezra.

MISSOURI

Personal.—Dr. George O. Coffin, Kansas City, formerly city physician, suffered a slight cerebral hemorrhage, December 6. ——Dr. Frederick A. Patterson has been continued as acting superintendent of State Hospital No. 2, St. Joseph.——Dr. Charles B. Irwin is said to be the appointee as physician at the Kansas City Tuberculosis Hospital.

Medical Society to Erect Building.—The Jackson County Medical Society has purchased a lot on Thirty-fourth street and Gillham Road, Kansas City, and plans are being made for the erection of a building which is to be the home of the physicians of the city and county. It will be used as a meeting place, and will be equipped with a medical library and museum.

Society Meetings.—At the annual election of the St. Louis County Medical Society, held in St. Louis, December 8, Dr. Leander W. Cape, Maplewood, was elected president; Dr. Ralph W. Mills, Webster Groves, vice-president; and Dr. Pierre M. Brossard, Maplewood, secretary-treasurer.——Jackson County Medical Society, at its annual meeting, December 7, elected the following officers: Dr. Bennett C. Hyde, president; Dr. Jefferson D. Griffith, vice-president; Dr. Edward L. Stewart, secretary; Dr. William F. Kuhn, treasurer; Dr. Frank C. Neff, censor; and Drs. William J. Frick, Herman E. Pearse, James Q. Chambers, and Albert J. Welch, delegates to the state association, all of Kansas City.——The St. Joseph-Buchanan County Medical Society, at its annual meeting, December 8, elected the following officers: Dr. Charles R. Woodson, president; Drs. Frederick H. Ladd and Levi S. Long, vice-presidents; Dr. Charles Wood Fassett, secretary (reelected); Dr. John M. Bell, treasurer; Dr. O. Beverly Campbell, censor; Dr. Arthur B. McGlothlan, delegate to the state association, and Dr. Harrison S. Forgrave, alternate, all of St. Joseph. The society accepted the offer of the Ensworth Medical College for a meeting place, and also decided to continue the post-graduate work of instruction on the plan published by the American Medical Association.

St. Louis

Neumann in St. Louis.—Prof. Heinrich Neumann, Vienna, arrived in St. Louis December 8, and delivered a course of clinical lectures on diseases of the ear.

Physicians Interested in New Life Insurance Company.—The Inland Insurance Company has been incorporated with a capital stock of $150,000. Drs. Burwell W. Gunn, Paul R. Baer, Johannes Demmler, Theodore Greiner, and Benjamin Shanklin are members of the board of directors.

Fail to Report Contagious Cases.—Six physicians of the city were arraigned before Judge Tracy, December 15, for failing to report cases of contagious diseases to the board of health as required by ordinance. One was fined $250 and costs, two $50 and costs each, one was acquitted, and two cases were continued.

Personal.—Dr. Leo Loeb, formerly director of the laboratory of experimental pathology in the Medical Department of the University of Pennsylvania, has accepted the position of pathologist to the St. Louis Skin and Cancer Hospital.

Fined for Illegal Practice.—W. T. Johnson is said to have pleaded guilty, November 29, to three charges of practicing medicine without a license, and was fined $50 and costs for each offense.——Moses Helscher, who styles himself "Moses II," is said to have been found guilty of practicing medicine without a license, December 10, and to have been sentenced to pay a fine of $500 and be imprisoned thirty days in the county jail.

Municipal Tuberculosis Organ.—The November number of the Bulletin of the Municipal Commission on Tuberculosis of St. Louis announces that it will hereafter be under the editorial management of Dr. Kenneth W. Millican. The Bulletin contains 80 pages, the principal article being an address on "A State Campaign Against Tuberculosis," delivered before the Conference of Charities and Corrections at Farmington, on November 6, by Dr. H. Orville Brown, superintendent of the State Sanatorium for Tuberculosis. It contains also a report of deaths from tuberculosis in St. Louis during August, reports on the progress of the campaign, sanitary rules for city employees issued by the mayor of St. Louis on the recommendation of the commission, a brief review of recent literature on tuberculosis, and much other pertinent editorial comment. The Bulletin should do effective work in the campaign against tuberculosis in Missouri, and should receive liberal support from the authorities and the people of St. Louis.

NORTH CAROLINA

Personal.—Dr. Harry Q. Alexander, Matthews, has been reelected physician of the State Farmers' Union.——Dr. Silvio H. Von Ruck, Asheville, is spending the winter in post-graduate work abroad.——Dr. James M. Sloan has been appointed surgeon of the Carolina and Northwestern Railway at Gastonia, and Dr. Lucius N. Glenn, assistant surgeon.——Dr. E. Reid Russell, Charlotte, one of the founders of the North Carolina Medical College, and head of the Eye, Ear, Nose and Throat Department, has resigned and moved to Asheville. W

Watts Hospital Opened.—On December 1 the handsome new Watts Hospital, Durham, was formally opened to the city and county by Mr. George W. Watts. The hospital occupies a magnificent site in the center of a park of 28 acres, and is donated to the city and county with an endowment of $100,000, with a single condition "that no worthy poor be excluded from its doors." The hospital will accommodate 100 patients, and by the wishes of the donor will be under the control of the Durham County Medical Society and Durham Academy of Medicine. W

County Society Elections.—Wilson County Medical Society, at its December meeting, elected Dr. Henry B. Best, president; Dr. Carl Moore, vice-president; Dr. Elijah T. Dickinson, secretary, and Dr. Benjamin S. Hering, delegate to the state society, all of Wilson.——Mecklenburg County Medical Society recently elected the following officers: President, Dr. Andrew J. Crowell; vice-president, Drs. Francis O. Hawley and Leone B. Newell and Charles A. Meisenheimer; and secretary-treasurer, Dr. Robert H. Lafferty, all of Charlotte.—— At the meeting of the Guilford County Medical Society in Greensboro, December 2, Dr. Charles S. Gilmer, Greensboro, was elected president; Dr. Charles W. Moseley, Greensboro, vice-president; Dr. J. Parran Jarboe, Greensboro, secretary-treasurer, and Dr. William P. Beall, Greensboro, censor.—— Cumberland County Medical Society, at its annual meeting, elected the following officers: Dr. Seavy Highsmith, Fayetteville, president; Dr. Percy W. Olive, Wade, vice-president; Dr. William S. Jordan, Fayetteville, secretary, and delegate to the state society, Dr. Jacob F. Highsmith, Fayetteville.——Gaston County Medical Society has elected the following officers: President, Dr. George R. Patrick, Lowell; vice-president, Dr. John H. Jenkins, Dallas; secretary, Dr. Lucius N. Glenn, Gastonia, and delegates to the state society, Drs. David A. Garrison and Lucius N. Glenn, Gastonia.

NEW YORK

Addition to Hospital.—The two additional buildings for the maternity department of the Rochester City Hospital are nearing completion. They are of brick, two stories in height, fireproof, and will cost about $100,000.

New Standard Certificate of Death.—Beginning with January 1, the New York State Department of Health requires the use of the recently-revised United States Standard Certificate of Death. The form has been approved by the United States Census Bureau and the American Public Health Association. The uniform adoption of this certificate will greatly facilitate the study and comparison of mortality statistics.

Medical Society Meeting.—The eighty-sixth annual meeting of the Medical Society of the County of Erie was held in Buffalo, December 20. The following officers were elected: President, Dr. Grover W. Wende; vice-president, Dr. Bernard Cohen; secretary, Dr. Franklin C. Gram; treasurer, Dr. Albert T. Lytle; chairman of registration committee, Dr. F. Park Lewis; chairman of committee on public health, Dr. Ernest Wende; and chairman of board of censors, Dr. John H. Grant, all of Buffalo.

State Rabies Treatment.—Contending that in many instances rabies is due to laxity of public health control, Dr. Eugene H. Porter, State Commissioner of Health, believes it is the duty of the state to furnish treatment to those afflicted with the disease. Preparations have been completed at the State Hygienic Laboratory to take up this work. Time and money have been lost in the past by sending the victims of rabies to New York City, while the laboratory at Albany will be sufficiently central to furnish treatment to every citizen in the state.

New York City

New Headquarters for Board of Health.—The board of estimates, on December 10, voted to purchase for $850,000 a twelve-story building at Sixteenth street and Irving place, to be used as headquarters for the Board of Health and other departments.

Appropriations for Hospitals.—Within the past month the city has appropriated $2,500,000 for hospitals for the treatment of tuberculosis on Staten and Blackwell's islands. When these hospitals are completed, the city will have 2,500 beds in special tuberculosis hospitals.

Physical Tests Before Graduation.—By a ruling of Superintendent Maxwell all pupils in the elementary schools will be required to pass satisfactory examinations in physical culture before graduation. The requirements are: success of the pupil in carrying out certain instruction in regard to cleanliness of face, nails, mouth and clothing; the pupil must acquire good posture and expression of vigor; gymnastics for the boys and folk-dances for the girls.

New Wing for Hospital Opened.—The new south wing of the Long Island College Hospital, Brookyln, which is part of a memorial erected by J. Rogers Maxwell to his brother, Henry W. Maxwell, has been opened. This wing contains the Skene Memorial Amphitheater, named in honor of Dr. Alexander J. C. Skene. The wing will accommodate 165 adults and 65 children, and contains two operating rooms, an *x*-ray room, and a mortuary chapel. The amphitheater will seat 300 students.

Society Election.—The Eastern Medical Society of the City of New York has elected the following officers: President, Dr. Abraham J. Rongy; vice-presidents, Drs. Abraham Hymanson and Meyer M. Stark; recording secretary, Dr. Maurice O. Magid (reelected); corresponding secretary, Dr. Harry E. Isaacs; treasurer, Dr. Joseph Bieber; trustee, Dr. Charles Goodman; and chairmen of committees: Ethics, Dr. David Robinsohn; admissions, Dr. Sidney D. Jacobson; house, Dr. David J. Hyman, and library, Dr. Emil Altman.

PENNSYLVANIA

Physicians Arraigned.—Dr. R. J. Brauner, State Health Inspector, is bringing many prosecutions against physicians of Schuylkill county for neglecting to report births within the ten days required by law. On December 9, the following physicians were arraigned before Justice of the Peace H. B. McCool: Drs. John McCrystle and George A. Merkle, of Minersville; Alexander L. Gillars and George H. Boone, of Pottsville; Paul B. Dunn, of Mahanoy City; S. H. Brady, of Girardville; Daniel J. Langton and Christian Gruhler, of Shenandoah. The cases against Drs. Gillars, Merkle and McCrystal were dismissed and others entered bail for their appearance at court.

Philadelphia

Poor Directors Choose Officers.—At a meeting of the Directors of the Poor of the Oxford and Lower Dublin District, held in Holmesburg, December 16, the following medical officers were elected: Dr. Joseph R. Knight, physician for poorhouse and Fox Chase District; Dr. Clarence J. Lewis, physician for Holmesburg; Dr. Thomas Allison, physician for Frankford.

Appropriation for Health and Charities Cut.—Councils subcommittee on finance to the Common Council on December 16, the six department appropriation bills that had been received favorably by the committee and the amounts asked for and received. Among the others was the Department of Health and Charities, which asked for $1,517,831 and received $801,540. In the health and charities appropriation the Health Bureau gets $321,000.

Phipps Institute to Affiliate with the University.—Formal announcement is made by the University of Pennsylvania that the Henry Phipps Institute for the Treatment and Prevention of Tuberculosis will be united with the university. This change will not take place until after the completion of the new buildings, which are to be erected by Mr. Phipps at a cost of more than $500,000 at Seventh and Lombard streets.

SOUTH CAROLINA

Society Meetings.—At the annual meeting of Greenville County Medical Society, December 6, held in Greenville, Dr. Ernest W. Carpenter, Greenville, was elected president; Dr. Wyatt Y. McDaniels Taylors, vice-president; Dr. Charles O. Bates, secretary; and Dr. R. D. Smith, Greenville, treasurer. ——The annual meeting and banquet of the Charleston County Medical Society was held in Charleston December 13, and the following officers were elected: President, Dr. Archibald E. Baker; vice-president, Dr. Charles P. Aimer; secretary, Dr. William C. O'Driscoll; treasurer, Dr. Rowland Alston; librarian, Dr. Julius C. Sosnowski; censor, Dr. Charles M. Reese, and delegate to the state association, Dr. Allen J. Jervey, all of Charleston.

GENERAL NEWS AND COMMENT

The Knights of Modern Chivalry and the Days of Reckoning

For several months physicians have been receiving from one Ira Clay Hicks, M.D., letters on the official stationery of the Senate Chamber of the State of West Virginia. Not all these letters, however, have been mailed from, or dated at, Charlestown, W. Va.—most of them coming from Albany, N. Y., while some emanated from Huntington, W. Va. The wording in all has been essentially the same and has called attention to the fact that "the writer is interested in a fraternal order now being perfected pursuant to the laws of New York; and known as 'Supreme Court, Knight of Modern Chivalry.'" Dr. Hicks states that while he does not know personally the physician he is addressing, he knows him to be "one of the leading physicians in your town, from recommendation and Polk's Directory" (!), and he has therefore taken the liberty of recommending his addressee to an "important appointment." The appointment in question is that of becoming "city court Esculapius for the purpose of making examinations and attending disabled members." The "string" attached to this "appointment" is that the physician shall "kindly forward us your check . . . in the sum of $25."

To lend an air of respectability to this scheme, not only is the State of West Virginia rung in, but the American Medical Association also is used. Says Dr. Ira Clay Hicks:

> "I am a member of the A. M. A. and I can authoritatively say that the proposition is absolutely and entirely ethical."

If by "authoritatively" Dr. Hicks means that he speaks on the authority of the American Medical Association, the sentence quoted contains two clearly defined untruths, for Ira Clay Hicks is not—and never has been—a member of the American Medical Association, and the Association has never pronounced the Knights of Modern Chivalry in any sense an "ethical," or any other kind of a proposition.

When the "order" was first started, the physicians who were written to were told that "there are only two hundred appointments to be made," and an imposing reproduction of a certificate of the National Surety Company of New York was shown. The certificate stated that a "schedule bond" had been issued in behalf of the trustees who were to have charge of the amount of money sent in by "the two hundred original subscribing members . . . ." The plan evidently worked well, for we find before the time of the first "schedule bond" had expired another was issued to cover the amounts sent in by "the three hundred additional original subscribing members."

The "chief justice" of the order is N. Napoleon Hicks, or Norman N. Hicks, who advises physicians that they have been recommended to him by Dr. Ira Clay Hicks. N. N. Hicks, who sometimes writes from Albany, N. Y., and sometimes from Schenectady of the the same state, has, we understand, been connected with at least two other insurance concerns which have ceased to exist. In his letters he tells physicians that he has "an exceptionally extraordinary proposition to make." As an additional bait, prospective applicants to membership are sent photographic reproductions of checks sent in by physicians who have already bitten. Altogether, the plan seems to have worked very well—from the standpoint of the "organizers."

Apropos of the above, the following from the *Boston Herald* may interest those who have parted with the $25 necessary to become "city court Esculapius":

DOCTORS GAVE $25 TO FAKE SOCIETY

Were to Become Examiners of "Knights of Modern Chivalry" Now Under Ban of New York Insurance Superintendent

> Albany, N. Y., Dec. 22.—That scores of physicians all over the country have contributed $20 each for a benefit certificate in the "Knights of Modern Chivalry," with an additional $5 as a fee for the title of "City Court Esculapius," or in plain terms, medical examiner, developed to-day when an order was obtained from Supreme Court Justice Chester placing Supt. Hotchkiss of the state insurance department in charge of the affairs of the organization.
>
> The society was organized last June by N. Napoleon Hicks. Although $6,665 has been paid in, almost wholly by physicians, no insurance has been paid, and the society has but $109 in its treasury, with apparent liabilities of $1,407.
>
> "Check stubs indicate," said Supt. Hotchkiss, "that more than half the money disbursed has been paid to N. Napoleon Hicks, who is 'chief justice' of the society."
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> Complaint having been made as to the failure of the society to meet an accident claim, the insurance department called for a statement.
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> Physicians became interested in the representation that lodges were to be formed in various cities and villages and that they were to be appointed medical examiners.
>
> "No lodges have been formed," said Supt. Hotchkiss, "and the society is now nothing more than an assessment association whose members have parted with their money and become liable to assessments without having secured any benefits or being likely to secure any."

Medical History Society Formed.—The Society of Medical History of Chicago has been recently organized, with Dr. Isaac N. Danforth as president; Dr. N. S. Davis, vice-president, and Dr. George H. Weaver, secretary. Its council consists of Drs. Ludvig Hektoen, George H. Weaver, John Edwin Rhodes, N. S. Davis, Henry T. Byford and George Henry Cleveland. Dr. Howard A. Kelly of Baltimore will deliver the address at the first meeting, which will occur on the evening of Feb. 19, 1910. This society has been formed for the purpose of systematically collecting and permanently preserving in an accessible manner any matters which are or will become of interest in connection with the medical history of institutions, organizations and individuals, especially of Chicago and the surrounding states. The Journal discussed this subject Aug. 14, 1909, page 561. Some of the materials included in such a collection are: western medical books and articles, biographies and histories, local medical journals published prior to 1880, and especially prior to the Chicago fire, catalogues, announcements, diplomas, graduation programs, official reports, directories, photographs, manuscripts, instruments and anything which has a medico-historical value from any source. By meetings the society will endeavor to stimulate the writing of historical papers founded on research from original sources. It desires to aid the present generation in gaining inspiration from the study of what its predecessors accomplished. The society asks the support of the profession. It makes a special appeal to those outside of Chicago for anything antedating the Chicago fire. It will gladly cooperate with other organizations operating in similar lines. Everything collected will, as soon as possible, be so arranged as to be accessible to persons doing research in medical history. Gifts will be credited to the donors. All communications should be sent to Dr. George H. Weaver, secretary, 1743 West Harrison street, Chicago.

Jacobi Research Fund Available.—The Women's Medical Association of New York City offers the Mary Putnam Jacobi Fellowship of $800 available for graduate study. It is open to any woman graduate in medicine. The fellowship will not be awarded by competitive examination, but on proof of ability and promise of success in the chosen line of work. Applications for the year 1910-11 must be in the hands of the committee on award by March 1, 1910, and must be accompanied by: 1. Testimonials as to thoroughly good health. 2. Letters as to ability and character. 3. A detailed account of educational qualifications. 4. A statement of the work. 5. Examples, if any, of her work, in the form of articles or accounts of investigations carried out. It is preferable that the applicant present herself in person. All applications should be forwarded to the chairman of the committee on award, Dr. Emily Leewi, 35 Mt. Morris Park West, New York City.

Surgeons and Gynecologists Elect Officers.—At the annual meeting of the Western Surgical and Gynecological Association, which met in Omaha December 21, the following officers were elected: President, Dr. John P. Lord, Omaha; vice-presidents, Drs. Harry M. Sherman, San Francisco, and Lewis L. McArthur, Chicago; and secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. The next meeting will be held in Chicago. ——The twenty-second annual session of the Southern Surgical and Gynecological Association was held in Hot Springs, Va., December 14-16. Nashville was selected as the place for the next convention, and the following officers were elected: President, Dr. William O. Roberts, Louisville; vice-presidents, Drs. Joseph C. Bloodgood, Baltimore, and Lewis C. Morris, Birmingham, Ala.; secretary, Dr. William D. Haggard, Nashville, Tenn., and treasurer, Dr. William S. Goldsmith, Atlanta, Ga.

Journal of the Delaware Medical Society.—This very attractive publication makes its initial appearance with the December issue. So far as appearances go, it stands alone in medical journalism. It savors rather of the output of a society of art than of medicine—but that is favorable and not unfavorable criticism. Much credit is due the editorial staff for putting forth so commendable a piece of work. It is well arranged, well edited, and well printed on a full finished paper, from clear, clean type, which does not try vision. The contents deserve the highest praise, and promise a good future for this publication.

The Gibbs Fund.—The council of the New York Academy of Medicine announces that the income of the Edward N. Gibbs fund, amounting to $500 a year, will be grantetd for a period of years to any qualified worker to be selected by the council from those who may apply for its use in research in the clinical, pathologic or chemical problems of diseases of the kidney. Applications stating the qualifications of the applicant and the topic which he proposes to pursue should be sent to the secretary of the council of the New York Academy of Medicine, 17 West Forty-third street, New York City.

Bust of Pasteur Presented.—The Pasteur Institute of Paris has presented to the Rockefeller Institute for Medical Research, New York City, a replica of the bronze bust of Louis Pasteur by Paul Dubois, in recognition of the assistance rendered during the recent epidemic of cerebrospinal meningitis which prevailed in France.

Journals Consolidate.—Dr. W. J. Robinson of the *Critic and Guide*, *American Journal of Urology* and *Therapeutic Medicine* has purchased *Practical Therapeutics* and consolidated it with *Therapeutic Medicine*.

LONDON LETTER

(From Our Regular Correspondent)

London, Dec. 18, 1909.

Vital Statistics in 1908

The seventy-first annual report of the registrar general of births, deaths and marriages in England and Wales has just been issued and contains several figures of interest. It is based on an estimated population in the middle of 1908 of 17,071,524 males and 18,277,256 females. The marriage rate during the year was 14.9 per 1,000 of the population of all ages, 0.9 below the rate for 1907, and the same figure below the average for the last ten years. In previous reports it has been pointed out that although it was possible many years ago to trace some correspondence between the fluctuations in the marriage rate and the fluctuations in the price of wheat, in more recent years the figures show no such parallelism, but the fluctuations in the marriage rate show some correspondence with the fluctuations of exports and of employment. The births numbered 940,383, of which 37,531 were illegitimate. The birth rate was 26.5 per 1,000 living, 0.2 per cent. above that recorded in 1907, but 1.6 below the low rates of the ten years 1896-1907. In the year 1876 the birth rate in this country attained the highest point on record, 36.3 per 1,000. Since that date, with a few insignificant exceptions, it has fallen year by year until in 1907 it was 26.3. Although the slight rise in 1908 is noteworthy, it is probably a reflection of the upward change in the marriage rate, which took place in the years 1905-'07. There is no present indication, says the report, of any real check in the decline of the birth rate. The provisional returns for 1909 show a decrease in each quarter as compared with the corresponding quarter of the previous year, while the heavy fall in the marriage rate of 1908 will probably depress the rate further in the following years. The death rate from all causes was 14.7 per 1,000, 0.3

per 1,000 below the rate of 1907, and lower than the rate of any year on record. Compared with the average of in the ten years 1898-1907, the death rate in 1908 showed a decrease of 1.7. Of infants under 1 year 120 died per 1,000 births. This rate was 2 per 1,000 above that of 1907, but 22 below the average of the previous ten years. In the report for 1907 a decline in mortality from cancer was reported. Unhappily there is now recorded a slight increase. Comparison with other European countries shows an unenviable position. The death rate from cancer is exceeded only by that of two other countries, Switzerland and the Netherlands. Scotland occupies a slightly better position than England, and Ireland, notwithstanding its higher age constitution, a much better position.

The Health of the Army

In his report for 1908, which has just been issued, Surg.-Gen. Sir Alfred Keogh states that for several successive years a decline in the incidence of sickness in the army has been shown. He now reports a further diminution in the figures for last year. During that period the admissions to hospital represented a ratio of 573.1 per 1,000 of strength, deaths 4.78, invalids sent home 15.91, finally discharged 10.32, and those constantly sick 32.28. A steady improvement in the health of the army has taken place since 1899, the diminution in sickness being most marked from 1904. Between 1899 and 1908 the admission to hospital figures have been reduced nearly one-half. As a result of this improvement the effective strength of the army within the last decade has been raised by 5,776 men and the wastage through deaths and invaliding has been reduced by 2,900 men per annum. Within four years these changes have allowed of the reduction of hospital beds at home stations by over 2,200 and similar reduction is being carried out for stations abroad. These results are attributed to improved sanitation, improved methods in treating disease, and greater care in recruiting. Formerly in all cases of illness the soldier was compelled to enter hospital. Now an out-patient system has been adopted by which the milder cases are treated in barracks. The personnel of the army surgeons has been greatly improved. Increased pay, the necessity of passing examinations for promotions, leave for periodical study at the hospitals, and the introduction of specialism has greatly increased their efficiency. Great developments have taken place in the military hospitals where operations are now performed which were never attempted before. Sanitary administration has reached a high level. Officers and men are instructed in elementary hygiene. There is a great decline in enteric fever, Malta fever, malarial fever, tuberculous diseases and heart affections. Both in this country and India there has been a marked decline in alcoholism largely due to temperance propaganda. In the United Kingdom the admissions for alcoholism numbered only 80, as compared with 119 in 1907. Comparison of the health of various armies shows that the British is the best but one, while the Army of the United States is by far the worst. The following table gives the incidence of disease per 1,000 strength: Russia, 415; United Kingdom, 428; Germany, 588; France, 681; Austria, 826, and the United States, 1,172. Comparison with the figures of the previous year show that the British army, the German army and the United States Army have improved, while the other armies have deteriorated. In regard to enteric fever, the British army shows a very favorable position; the incidence of the disease is only 0.7 per 1,000; the Russian army occupies the lowest place, with an incidence of 5.6 per 1,000, and is followed by the French with 4.5. The best place is occupied by the German army, with only .51. Tuberculosis shows a great improvement in the British army, but appears to be very prevalent in the French and American armies, in which the incidence is three times greater. Greater care is now taken of the soldier's teeth, and tooth-brushes are issued to the troops. The life of masticatory efficiency of the teeth has consequently been prolonged, but much still remains to be done in the education of the men.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Dec. 16, 1909.

The Insane in the Army

Drs. Antheaume and R. Mignot have just published a book on mental maladies in the French army. This is a timely subject, which attracts much attention, not only in the medical profession, but also among the public. It was, moreover, discussed at the last French Congress of Alienists and Neurologists, at which it was the subject of a report by Dr. Granjux (The Journal, Aug. 28, 1909, liii, 726). Insanity is of particularly frequent occurrence in the foreign legion, in the African battalions and the *compagnies de discipline*. Volunteers furnish the largest number of the insane, and consequently the largest number of deserters and *disciplinaires*. Thus in a *compagnie de discipline*, Dr. Uzac has stated that half of the men were volunteers. In the eighteenth corps, out of 164 soldiers under sentence in the regiment, Professor Regis has found 64 conscripts and 100 volunteers, an enormous proportion considering that in a regiment the number of volunteers is very small in proportion to that of the conscripts. The fact is that some "volunteers" really do not enlist voluntarily, but are brought to the barracks by their parents like children being led to school. These are undisciplined, unbalanced young men of fantastic character, predisposed to insanity, in whom military life with its various demands at once causes hitherto latent insanity to become manifest. It is to remedy this state of affairs that the Congress of Alienists and Neurologists passed a resolution that no one should be allowed to enlist unless he produced from his family physician a certificate stating that he had not presented any morbid mental state. This certificate should be controlled by the recruiting physician, who should also examine the mental condition of the candidate before his admission. This has been done for a long time in Belgium. It would be advisable likewise that the prefects should give the military authorities the names of the conscripts who have been placed in an asylum, or whose lack of mental balance is well known, so that the attention of the military physician should be particularly drawn to such a recruit. Unfortunately, at the council of review, the conscripts are examined only physically, time being far too short for a mental examination; and even after enrolment many mental diseases remain unrecognized, their diagnosis demanding a special knowledge of psychiatry, which military physicians rarely possess. It is well recognized that the psychiatric instruction which is given to military physicians at present is insufficient and ought to be increased. Professor Regis even suggests that lectures should be organized to familiarize the officers with elementary ideas of psychiatry, so as to enable them to report to the physician the appearance of the first symptoms of psychoses in the soldiers.

Distribution of the Prizes of the Academy of Medicine

On December 14, the customary session for the distribution of prizes was held at the Academy of Medicine. The Audiffred prize, consisting of an annual income of $4,800 (24,000 francs) intended for the discoverer of a remedy, curative or preventive, effective against tuberculosis, naturally has not been awarded. The Academy merely presented $400 (2,000 francs) by way of encouragement to Dr. G. Moussu, professor in the veterinary school at Alfort, and C. Mantoux of Cannet for their works on the "Intradermal Tuberculin Reaction in Animals," and $100 (500 francs) to Dr. L. Rénon, professor agrégé at the Paris medical school, for his work, "Practical Treatment of Pulmonary Tuberculosis." The Chevallier prize of $1,200 (6,000 francs) for the author of the best French work published on the origin, development and treatment of pulmonary tuberculosis or other forms, was awarded to Dr. H. Gougerot of Paris for his work, "Non-Follicular Bacillosis." The Laborie prize of $1,000 (5,000 francs), offered for work marking a notable advance in the science of surgery, was awarded to Dr. P. Redard of Paris for his entire works on orthopedic surgery. The Herpin prize of $600 (3,000 francs) for the best work on nervous diseases, was awarded to Drs. P. Lejonne and J. Lhermitte of Paris for their work on "The Myopathy of the Aged." The Tarnier prize of $1,350 (6,750 francs) offered for the best work on gynecology, was awarded to Dr. J. L. Faure, professor agrégé at the Paris medical school, for his work on hysterectomy. The Meynot prize of $520 (2,600 francs), for the best work on the diseases of the eye, was awarded to Dr. A. F. Terrien of Paris for his works "Précis of Ophthalmology" and "Syphilis of the Eye and Appendages." The Itard prize of $480 (2,400 francs) for the best book on practical medicine or applied therapeutics, was awarded to Dr. L. Rénon, agrégé at the Paris medical school, for his "Practical Lectures on Diseases of the Heart and Lungs." The Barbier prize of $400 (2,000 francs) offered for complete means of cure for diseases at present generally considered incurable, was divided among the following: (1) Drs. G. Levaditi and J. Roché, for their work, "Syphilis: Experimentation, *Microbiology, Diagnosis*;" (2) Drs. P. Coyne, professor at the Bordeaux medical school, and B. Auché, professor agrégé at the same school, for their memoir on "Polyvalent Serum in Bacillary Dysentery." The Buignet prize, $300 (1,500 francs), for the best work on the application of physics or chemistry to medical science, was awarded to Dr. H. Guilleminot of

So we might quote from the circular which is sent out by a man who claims to be a physician, urging, as it were, on the people the use of a product of this kind, which, as has clearly been shown, must in the end result in the formation of the cocain habit, if not in the complete demoralization and degradation of the individual himself.

The laws of North Dakota prohibit the sale of any compound or product in the state which contains cocain in any form. It further prohibits the refilling of a physician's prescription that contains cocain, and yet a product of this kind, it would seem from information that has been gathered, is sold directly to the consumer, although it is true the proprietor of the product maintains that it is now sold only to physicians. In a letter under date of Aug. 19, 1909, signed by Charles L. Mitchell, M.D., he says:

> What little we sell now conforms strictly with the requirements of the United States Pure Food and Drug Law, and is sold only on special order of physicians and their prescriptions.

Under date of September 7, I called the attention of the proprietor to the fact that the laws of this state would not permit of the sale of such a preparation in North Dakota. In reply, I received a letter which is self explanatory, as follows:

> September 13, 1909.
>
> *E. F. Ladd, North Dakota Agricultural College, Agricultural College, N. D.*
>
> *Dear Sir:* Your favor of September 7th duly received for which please accept my thanks. Owing to the "crank" legislation of many states we have discontinued the manufacture of *all* coca and cocain preparations. Any "fool" druggist of your state who gets or sells an old package of our coca-bola does it at his own risk, as necessarily, having been put out some time ago, there is *no guarantee,* and we will not protect him. The people are getting a little sense into their heads, however, *gradually,* and they will sometime realize that preparations of both coca and cocain have an honest and legitimate use by the medical profession. Your state law is silly, and on a par with the 9-foot bed sheet laws of Texas and Oklahoma. Of course, your duty is to enforce the law, not to criticise it. I can do that. I am,
>
> Yours very truly,
>
> Dict. by C. L. M. Charles L. Mitchell, M.D.

A letter of this kind needs no comment, and a product of this kind, in the judgment of the writer, can only be sent out for malicious purposes and its sale is illegal in North Dakota. We warn the public against either handling the same or using the same, if they would avoid the formation of a serious drug habit and one that must result in positive injury to our people.

This product, put up in the form of a gum, would easily take the place—for one who had formed the habit for cocain—of tobacco; and it might be made to take the place of chewing gum with young people who would be entirely innocent of the intentional use of any such preparation, not knowing the evil effects that would come from its continued use.

In the judgment of the writer, no man who will allow his name to be connected with a scheme of this kind should be permitted to digrace the profession of medicine by using the title M.D.

[In a later issue of the North Dakota bulletin a comparatively recent recruit to the nostrum ranks—Oxy-Tonic—is described. The family likeness of this "patent medicine" to the older and much exploited Liquozone lends an added interest to Mr. Ladd's article:]

OXY-TONIC—WHAT IS IT?

What is it? It looks like, smells like, tastes like, and analyzes much like Liquozone.[1] Oxy-Tonic is produced and sold by the Oxy-Tonic Company, 200 Illinois street, Chicago. It is advertised as a tonic germicide, free from spirits or drugs of any description whatsoever. A sample, Lab. No. 1837, examined by this department by Mr. Ziefle, was labeled: "Oxy-Tonic, or Antiseptic, 'Pick-me-up,' for Internal and External Use." They say in their literature:

> "There are no drugs whatever in this remedy. Oxy-Tonic, preferably so named because of its oxygen properties and tonic in its wonderful invigorating effects, is an oxidizing fluid of concentrated gaseous elements of an ozonous nature. Whether used as a medicine internally or as an antiseptic externally, proves not only harmless to the system but absolutely revitalizes all weakened cells and tissues, and is the only method by which complete purification of the blood may be accomplished."

An analysis of the sample gave the following results:

Reaction	Acid	
Specific gravity	1.0436	
Total solids	.351	per cent.
Volatile solids	.541	per cent.
Fixed solids (ash)	.0191	per cent.
Total acidity (calculated as H_2SO_4)	.51007	per cent.
Sulphurous acid	.1377	per cent.
Sulphuric acid	.1633	per cent.

The sample also contained a trace of hydrochloric acid.

The blackening of the total solids was characteristic of the action of sulfuric acid on organic matter. When the solids were heated, copious fumes of sulphur trioxid were evolved. It is clearly evident, therefore, that Oxy-Tonic is not what its manufacturers would have the public believe; and that it is not possessed of oxygen properties, but rather of acid properties due to the presence of sulphurous acid and sulphuric acids; that sulphurous and sulphuric acid are recognized as drugs; and that it is not, as they say, of gaseous, oxidizing elements. They further say:

> "This remedy is guaranteed as a positive specific in diphtheria cases."

Also:

> "You may place your trust in Oxy-Tonic as a true kidney remedy; stimulates the nervous system, aids nutritive changes, reduces congestion, and is a sedative very soothing in its action, etc."

To quote further:

> "All organic weaknesses, nervous debility, premature declining power, drains and kindred affections yield speedily to Oxy-Tonic. This is accomplished by the direct effects that Oxy-Tonic has on the blood through its vitalizing and oxygenating effects and the bringing about of a healthful, forceful, good, yet normal, circulation."

They also say:

> "Oxy-Tonic of special interest to ladies. The benefits to be derived are marvelous. You can treat yourself at home, etc."

If we compare those statements and the analysis with the analysis and literature which was sent out by the Liquozone people, we shall recognize that the product is of the same class. They describe it as being produced from the same products and "the virtues of Oxy-Tonic are derived solely from oxygen and other gases." Then they say: "The process of blending these gases together under pressure, confined in water and gas-tight tanks, wherein the requisite amount of water has first been placed causing the same to absorb these gases, produces the germicidal qualities."

Our state [North Dakota] drug law says that a product is *adulterated if it be an imitation of, or offered for sale under* the name of, another article or if it be falsely labeled in any respect, with regard to its composition, properties, uses or place of manufacture, or if it bear any design which shall deceive or tend to deceive. And further: "*It is adulterated if* its strength, quality or purity falls below the professed standard under which it is sold."

They say:

> "How can one medicine cure so many diseases? Only one conclusion can be drawn from this fact, viz., that there is one common cause for the different diseases, and that cause is the deadly MICROBE."

They further say:

> "It matters not what may be the name of the disease, it has its origin in the microbe and can be cured by Oxy-Tonic which attacks and destroys not the name but the root of the cause."

They claim, therefore, repeatedly that their product is a cure, and that all diseases, whether blood poisoning, dyspepsia, heart trouble, liver complaint, neuralgia, lumbago, nervous prostration, insomnia, etc., all have one common cause, the microbe. It is ridiculous to consider such claims as these. They go farther and say with reference to their product that it contains "nothing but pure water impregnated with oxygen and other germicidal gases, and contains no alcohol, opiates, or drugs of any description."

Now, as a matter of fact, Oxy-Tonic contains no more oxygen than is natural to common water, and it contains no other germicidal gases, so far as we have been able to detect. It does contain sulphuric acid, and it is significant that at the close of their pamphlet they give a table of poisons and their antidotes. The first poison mentioned by them is the class of acids of which sulphuric is one of those named—the product which is present in Oxy-Tonic in larger proportion than any other ingredient besides water; and yet they say that the product is perfectly harmless.

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[1] Liquozone is one of the many fakes exposed by Mr. Adams in the "Great American Fraud" series. It was shown that the nostrum was boomed by means of faked testimonials and that on analysis it was found to be ninety-nine per cent. water with small quantities of sulphuric and sulphurous acids.—Ed.]

In one place they name not less than forty-eight distinct diseases or ailments for which Oxy-Tonic is prescribed. In other words, it seems to be another "cure-all," good for consumption, scrofula, dyspepsia, liver and heart trouble, dysentery, Bright's disease, dropsy, neuralgias, sciatica and gout, hay fever and la grippe, salt rheum, tumors, sprains, bronchitis and tonsillitis, diphtheria, nerve weakness and insomnia, besides many others which are described throughout their pamphlet. Yet it is a drug, or at least contains drugs as defined by the U. S. P., but, nevertheless, it is described as being "as safe to drink as it is to drink pure water." Further on they add that in many cases patients appear to be worse after using the medicine. The cause is reaction: the medicine grappling the disease. Such is Oxy-Tonic the World's Greatest "Pick-Me-Up." Wondrous advertising; it leads one to feel that Barnum's claim that the American people like to be humbugged contains much of truth; at least they are not always able to discern the real truth in much cunningly worded advertising literature.

Fake Consumption Cures—The Bensonizer Treatment

[The following from the *Typographical Journal* indicates an important and encouraging fact, namely, that the public is slowly but surely waking up to the wiles of the quack and the nostrum vender. The attitude that the lay journal takes on the subject of cure-alls demonstrates the change that public opinion has undergone in the past few years. The "cure" here spoken of—the Bensonizer Treatment—is but one of the many "consumption cure" schemes.]

Alleged "cures" for almost all sorts of diseases are being continually placed before the public, and the more fearful the malady the greater the number of "cures." In this connection, we print the following item:

> Washington, D. C., November 10.—It is stated here that the medical department of the United States navy is about to look into the merits of a cure for consumption discovered by C. P. Benson, of Texas, with a view to its adoption. The attention of high government officials was attracted to this cure through the remarkably favorable results shown at the tuberculosis colony at the Printers Home at Colorado Springs, where seemingly hopeless victims of consumption were restored to health.

The above is entirely misleading, so far as it mentions the Union Printers Home. The Benson method has been rejected by the trustees of the institution, and the statement made is erroneous throughout. The home superintendent asserts that there is only one known case where the Benson treatment has been used by a home resident, and then it was given a trial subsequent to his departure from the institution. The former resident died at a later date in Denver, Colo. So much for the "remarkably favorable results" derived from the Benson treatment by those domiciled at the home.

Several experiments have been made at the Union Printers Home with so-called "cures" for consumption, but they have never accomplished any favorable results. The officials of the institution are not experimenting with "heal-alls" of any description, and feel that the methods employed by fakirs in their efforts to delude tuberculosis sufferers should be denounced by all sensible persons.

Correspondence

Psychiatry in Munich

To the Editor:—The *Fortbildungs* or "extension" course in psychiatry given at the University of Munich, Bavaria, is unequaled in its advantages for men interested in this branch.

At the head of it is Professor Kraepelin, who was induced to come from Heidelberg to Munich by a *carte blanche* offer of an opportunity to have ideal conditions created. The "klinik" was built and equipped to meet his views and in construction and arrangement, both for treating insanity and teaching psychiatry, is without a rival.

Alzheimer, one of the foremost brain histologists, teaches his subject not only in a complete but in a fascinating manner. Liepman, of Berlin, gave this year a course on "Aphasia, Apraxia and Agnosia," illuminating this difficult subject by the clear presentation of principles and of the findings in a most remarkable series of cases, both ante-mortem and post-mortem. He seems to have gone a step farther than Marie in blazing a path through this as yet incompletely explored field.

I would be glad if I had time and you had space to enlarge further—to speak of the valuable work of Kattwinkel in clinical demonstrations: Plant in the "Wassermann" researches, which have elucidated a whole group of cases of juvenile "paresis;" of Brodman's embryologic studies of the layers of the cortex; of Isserlin's presentation of hypnotism, psychotherapy, etc.; Ruedin's studies in degeneracy and medical jurisprudence of insanity; and Weiler's work in elaboration of apparatus and appliances of all sorts for reaction experiments.

The whole is permeated by Kraepelin's masterful spirit, uniting as he does in himself, the scientist, the humanitarian and the sincere enthusiasm of the gifted educator.

This year 60 or 70 men and 2 or 3 women from all parts of the world daily attended the course, which involved four to eight hours of closest application (especially for non-Germans).

Richard Dewey, Wauwatosa, Wis.

Credit to an Author

To the Editor:—I regret to notice in the new edition of my work on the appendix under title "Appendicitis and Other Diseases of the Vermiform Appendix," that in Chapter 12, on "The Leucocytes in Appendicitis," no credit is given to Dr. Charles E. Simon of this city, who in this chapter embodies his own experiences and wrote it for me as it stands. May I ask you to allow me to rectify an unintentional error through The Journal. Howard A. Kelly, Baltimore.

Latin Humbug

To the Editor:—*The World's Work* for November published a letter telling of a case in which a physician's prescription, written in abbreviated Latin, was filled from a bottle of medicine (evidently proprietary), the price of which was $1; but for a quarter of it the druggist charged 60 cents. The editor then asserted that the use of Latin in sciences, medicine and law fosters quackery, hampers the dissemination of knowledge, and that the use of English in medicine would result in a decrease of the drug habit. The editor declined to print a reply which I sent, saying that "It is an infernal shame that . . . we should still be in subjection to medieval priests and scholars in naming the simplest flower or the simplest medicine;" and that he knew that the English could be used with much greater precision than the Latin. If you think my reply to the editorial worth printing, I am enclosing it for that purpose. Henry B. Hemenway, Evanston, Ill.

The following is an abstract of Dr. Hemenway's letter to *The World's Work:*

The World's Work for November, 1909, contains a short article on "Latin Humbug," which is so pernicious and misleading in every line that it deserves a reply, particularly inasmuch as it apparently has the sanction of the editor, for he has not made a single adverse comment. To one who is informed it seems apparent that the letter in question was really written in the aid of the proprietary medicine business, which is to-day smarting under the renewal of scientific medication.

The Latin language has long been the medium for exchange of thought in the scientific world. It cannot be displaced without a loss of exactness. A growing language lacks exactness because the same word differs in meaning from time to time. Colloquialisms obscure the meaning.

The unscientific man does not realize the need for exactness. Names of insects, animals and plants differ widely in different parts of the same country, and the same common name in one section means one thing, and in another locality it is used to designate a very different form. Take for example the common wintergreen, known scientifically as *Gaultheria procumbens.* It is known in different sections of the United States as the teaberry, checkerberry, partridgeberry, and boxberry. The *Mitchella repens,* a plant belonging to a very different family, is also known as the partridgeberry. The common name, "wakerobin," is used in one section to designate the *Trillium grandiflorum,* and in another it means *the T. cernuum.* Numerous illustrations might be given. On the other hand, scientific names, that is, Latin names, indicate the same object, not only in this country, but also in all parts of the world. Not only so, but the scientific name indicates to the educated man the nature of the plant. The *Mitchella repens* is a creeping plant, for example. Further, the Latin name helps the scientific man to place the specimen in its proper family, or group. Suppose, for example, that he is reading a German work in which a certain plant is mentioned by its common name, and some newly recognized property is mentioned. The common name means little, if he is not familiar with the plant in question. The Latin name is definite, and he may at once know that the plant is not found in America. The name, however, calls to his attention the fact that he has in a neighboring field found a plant closely related to the German species. He may then investigate, and find that the American plant has valuable properties which have previously been overlooked. The *Asclepias* genus is large, and widely distributed. Some of the plants have long been used in medicine; but who would naturally connect in thought the names commonly used to designate different species, such as "milkweed," "silkweed," and "pleurisy-root" or "butterfly-weed?" There are other kinds of "milkweed," but when I am told that some species of *Asclepias* may be profitably used for the production of rubber, I am prepared to find the plant with the least possible delay.

The same facts are applicable to medicine as to other sciences. A Latin prescription is definite, if properly written, in all lands. If a patient is told to get some "antiseptic solution," one druggist may give him a solution of the corrosive chlorid of mercury, another of formaldehyd, and another something else. If the prescription calls for Liquor antisepticus the druggist must give a solution of known, and definite, composition, and the patient should get the same in New York, Boston, Chicago, New Orleans or San Francisco.

There should be no secrecy in medicine, but uneducated persons should not attempt to prescribe poisons, for themselves or others. Any one who knows enough of the action of drugs and of normal and diseased conditions of the body to enable him to prescribe properly, will have no difficulty with Latin prescriptions.

Just as plants often have many common names, so drugs have various trade names. These trade names are generally catchy. "Hexamethylinamina" indicates the chemical composition of a certain official drug. For this article one firm has copyrighted "aminoform," others "urotropin," "formin," "cystogen," etc. If formin is called for, the druggist is expected to give that particular firm's product which bears that trade name. Manufacturers, or rather, the firms which put this drug up under their peculiar name, put on also a fictitious price. If the official name is used the pharmacist is simply expected to dispense a pure article. If trade names are used he must load his shelves with half a dozen firms' brands, and his stock will not be as fresh.

Proprietary mixtures, of uncertain purity and value, have been unduly lauded to the medical profession. It recently came to the attention of the profession that one of the large importing firms were paying exorbitantly for physicians' endorsements, without regard to the standing of the writer. Physicians were writing prescriptions for mixtures, and so specifying makers that the retail pharmacist was largely driven out of work. Next it was found that physicians were becoming less expert in the use of drugs for healing. There is now a strong propaganda for the return to definite scientific medicine. It is realized that there is no essential difference between the so-called "ethical proprietary" and the "patent" nostrum. The propaganda is hurting the proprietary manufacturers, and they are trying to check it. Realizing that they are using the physicians simply as advertising agents without pay, and that their chief profits come from the sales direct to the laity, these manufacturers urge that the prescription must always be written so that the patient may read it. That is not a disinterested argument. They want to sell in original packages, so that the label will act as a further advertisement.

The dropping of Latin from the law would not be of any advantage. The terms used have a definite meaning, which in many instances would take full sentences to express without the Latin. As used to-day they are practically Anglicised, as for instance, such words as "summons," "subpoena," "capias," etc.

Miscellany

Diseases Associated with Thyroid Changes.—A great variety of diseases are associated with or accompanied by noticeable thyroid changes. Thus rickets, lymphatism, chlorosis, cretinoid states and osteomalacia (?) are practically always associated with anatomical changes in the thyroid. Many of the prolonged infectious diseases, as lues, typhoid fever, influenza, acute articular rheumatism and tuberculosis, are frequently associated with or followed by thyroid hyperplasia. In individuals with adenoids and enlarged tonsils (lymphatism) (?), in abnormally fat children and in adiposis dolorosa, the association is not infrequent. In conditions in which mental and nervous fatigue have lasted for prolonged periods of time, as in neurasthenia, and in prolonged mental states produced by worry, shock, anxiety, overwork, etc., thyroid changes are frequently observed. Also there is a particular association of thyroid changes with the systemic changes taking place at puberty; with the menstrual function; with pregnancy and lactation, and with the menopause. Lastly, thyroid changes are perhaps most frequently seen in the poorly fed and poorly nourished young (puppies, lambs, calves and children).—D. Marine and C. H. Lenhart, in *Archives of Internal Medicine.*

Instructions Regarding Care of the Tuberculous.—When a tuberculous person vacates a room or a house, either because of removal to another locality or from death, the local health officer should at once disinfect the rooms occupied by the tuberculous person, before they are occupied by any other person. He should, moreover, ascertain the change of address of the tuberculous person in case of removal, and report the same to the State Board of Health, so that the case may be kept under the supervision of proper health authorities.—*Public Health*, Lansing, Mich.

The Public Service

Medical Corps of the Navy

Changes for the week ended Dec. 25, 1909:

Lynch, J. J., acting asst.-surgeon, ordered to duty at the Naval Hospital, Boston.

Huntington, E. O., surgeon, detached from the Naval Recruiting Station, Chattanooga, Tenn., and ordered to the *Lancaster.*

Fauntleroy, A. M., P. A. surgeon, detached from temporary duty on board the *Lancaster* and ordered to continue other duties.

Donelson, M., asst.-surgeon, detached from the Naval Recruiting Station, Nashville, Tenn., and ordered to the Naval Recruiting Station, Chattanooga, Tenn.

Bertolette, D. N., medical director, detached from duty as a member of the Naval Retiring Board, Washington, D. C., and ordered to continue other duties.

Orvis, R. T., surgeon, detached from the Naval Hospital, New York, and ordered to the *New Hampshire.*

Oman, C. M., P. A. surgeon, detached from the *New Hampshire* and ordered to the Naval Hospital, New York.

Medical Department of the Army

Changes for the week ended Dec. 25, 1909:

Woodson, Robert S., major, relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Adams, R. I., for duty.

Fuller, Leigh A., major., relieved from duty at Fort Adams, R. I., and ordered to Fort Hamilton, N. Y., for duty.

Edie, Guy L., lieut. col., detailed member of examing board during examination of Major Ogden Rafferty and Major James D. Glennan, Medical Corps, vice Lieut. Col. Jefferson R. Kean, Medical Corps, who will continue as a member of board for all other purposes.

Bradley, John R., 1st lieut., M. R. C., recently appointed, is ordered to active duty, and will proceed on January 1, to Fort Leavenworth, Kan., for duty.

Murtagh, John A., capt., granted 10 days' leave of absence.

Dear, William R., 1st lieut., left Fort Sheridan, Ill. on 10 day's leave of absence.

Fauntleroy, P. C., major, granted 10 days' leave of absence.

McMillan, C. W., 1st lieut., M. R. C., granted 3 months' leave, to take effect about January 22, 1910.

Birmingham, Harry P., lieut. col.; Darnall, Carl I., major; Reynolds, Charles R., major, appointed members of a board for the examination of such candidates as may be authorized to appear before it to determine their physical fitness for appointment as 2nd Lieuts. in the Army.

Kierulff, H. Newton, 1st lieut., M. R. C., granted 20 days' leave of absence with permission to apply for 10 days extension.

Hansell, Haywood S., capt., ordered to proceed from Fort Snelling, Minn., to Fort Assinniboine, Mont., not later than Dec. 29, 1909, for temporary duty at that post.

Gregory, J. C., capt., left Jefferson Barracks, Mo., for 10 days' leave of absence.

Gandy, Chas. M., lieut. col., left West Point, N. Y., en route to Washington, D. C., for duty on examining board for promotion of medical officers.

Phillips, Harry F., 1st lieut., M. R. C., left Fort Sam Houston, Tex., on 10 days' leave of absence.

Public Health and Marine-Hospital Service

Changes for the week ended Dec. 22, 1909:

Trask, J. W., asst. surgeon-general, granted 2 days' leave of absence from December 17, and 3½ days' leave from Dec. 21, 1909.

Irwin, Fairfax, surgeon, granted 5 days' leave of absence from Dec. 26, 1909. On expiration of present leave of absence, directed to proceed to Yokohama, Japan, for duty in office of the Consul-General.

Wasdin, Eugene, surgeon. Granted 1 month's leave of absence from Dec. 22, 1909, on account of sickness.

Stoner, J. B., surgeon, granted 4 days' leave of absence en route to station.

Cummings, Hugh S., P. A. surgeon, on the arrival of Surgeon Fairfax Irwin, directed to proceed to San Francisco, and report arrival to bureau by wire for further orders.

Billings, W. C., P. A. surgeon, granted 14 days' leave of absence from Dec. 23, 1909.

Corput, G. M., P. A. surgeon, leave granted Dec. 10, 1909, for 16 days from Dec. 15, 1909, amended to read 16 days from Dec. 27, 1909.

Fox, Carroll, P. A. surgeon, granted 5 days' leave of absence from Dec. 27, 1909.

Earle, B. H., P. A. surgeon, granted 15 days' leave of absence from Dec. 24, 1909.

Wollenberg, R. A. C., asst.-surgeon, granted 1 month's leave of absence from Dec. 22, 1909.

Knight, C. P., acting asst.-surgeon, granted 60 days' leave of absence, without pay, from Dec. 18, 1909.

Safford, M. V., acting asst.-surgeon, granted 4 days' leave of absence from Dec. 14, 1909.

Schuster, B. L., acting asst.-surgeon, granted 10 days' leave of absence from Dec. 18, 1909.

Story, H. C., acting asst.-surgeon, granted 8 days' leave of absence, without pay, from Nov. 12, 1909.

Tappan, J. W., acting asst.-surgeon, granted 4 days' leave of absence from Dec. 23, 1909.

Walkley, W. S., acting asst.-surgeon, granted 21 days' leave of absence from Dec. 10, 1909.

Wallace, C. R., acting asst.-surgeon, granted 6½ days' leave of absence from Dec. 21, 1909.

Health Reports

The following have been reported to the Public Health Service, during the week ended Dec. 24, 1909:

SMALLPOX—UNITED STATES

Kansas: Coffeyville, Dec. 4-11, 1 case.
Maryland: Baltimore, Dec. 4-11, 1 case.
North Carolina (12 counties), Sept. 1-30, 60 cases; Charlotte, Dec. 4-11, 5 cases.
Ohio: Dayton, Dec. 4-11, 2 cases.
Tennessee: Chattanooga, Nov. 6-13, 3 cases; Dowelltown, Nov. 27-Dec. 4, 1 case.

SMALLPOX—INSULAR

Philippine Islands: Manila, Oct. 23-30, 1 case.

SMALLPOX—FOREIGN

Brazil: Bahia, Nov. 5-19, 48 cases, 38 deaths.
Egypt: Alexandria, Sept. 1-30, 33 cases, 2 deaths; Cairo, Nov. 4-11, 2 cases.
France: Paris, Nov. 13-27, 3 cases, 1 death.
Germany: Munich, Nov. 7-13, 1 case.
Greece: Athens, Oct. 30-Nov. 6, 3 deaths.
India: Bombay, Nov. 9-23, 8 deaths; Calcutta, Oct. 30-Nov. 6, 1 death.
Italy, general, Nov. 21-28, 35 cases; Naples, 15 cases, 2 deaths.
Java: Batavia, Oct. 30-Nov. 6, 2 cases.
Mexico: Aguascalientes, Nov. 27-Dec. 4, 1 death; Chihuahua, Nov. 22-29, 2 deaths.
Netherlands: Amsterdam, Nov. 29-Dec. 4, 1 case, on a vessel.
Portugal: Lisbon, Oct. 9-30, 17 cases; Nov. 20-27, 11 cases.
Russia: Moscow; Oct. 9-23, 8 cases, 1 death; Nov. 6-13, 7 cases, 1 death; Odessa, Oct. 9-16, 7 cases, 4 deaths; Nov. 13-20, 11 cases, 3 deaths; Riga, Oct. 16-23, 2 cases; Nov. 13-20, 8 cases; St. Petersburg, 52 cases, 16 deaths.
Spain: Almeria, Oct. 1-31, 3 deaths; Barcelona, Nov. 22-29, 1 death.

YELLOW FEVER

Brazil: Manaos, Nov. 13-20, 1 death; Para, Nov. 20-27, 6 cases, 4 deaths.
Venezuela: Caracas, Nov. 13-20, 1 case.

CHOLERA—INSULAR

Philippine Islands: Manila, Oct. 23-30, 24 cases, 20 deaths; Provinces, 157 cases, 116 deaths.

CHOLERA—FOREIGN

China: Amoy, Oct. 23-30, 30 deaths.
India: Bombay, Nov. 9-23, 13 deaths; Calcutta, Oct. 30-Nov. 13, 16 deaths; Rangoon, Oct. 30-Nov. 6, 7 deaths.
Japan: Kadono district, Oct. 11-18, 187 cases, 76 deaths; Moji, Nov. 17, 1 death.
Russia: Moscow, Oct. 9-23, 3 cases, 2 deaths; Riga, Oct. 16-23, 4 cases.
Siam: Bangkok, Oct. 1-31, 3 cases, 3 deaths.
Siberia: Vladivostok, Oct. 21-28, 7 cases, 4 deaths; Oct. 28-Nov. 4, 4 cases, 4 deaths.

PLAGUE

Brazil: Bahia, Nov. 5-19, 7 cases, 5 deaths.
China: Amoy, Oct. 23-30, 40 deaths.
India, general, Oct. 30-Nov. 6, 5,725 cases, 4,479 deaths; Bombay, Nov. 9-23, 9 deaths; Calcutta, Oct. 30-Nov. 13, 10 deaths; Rangoon, Oct. 30-Nov. 6, 3 deaths.
Siam: Bangkok, Oct. 1-31, 8 cases, 7 deaths.
Zanzibar: Zanzibar, Oct. 31-Nov. 7, 1 death.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, January 11. Chairman, Dr. W. H. Sanders.
ARIZONA: Phoenix, January 3-4. Sec., Dr. Ancil Martin.
COLORADO: State Capitol, Denver, January 4. Sec., Dr. S. D. Van-Meter, 1723 Tremont Place.
DISTRICT OF COLUMBIA: Washington, January 10. Sec., Dr. George C. Ober, 210 B Street., S. E.
ILLINOIS: Coliseum Annex, Chicago, January 19-21. Sec., Dr. J. A. Egan, Springfield.
INDIANA: Room 120, State House, Indianapolis, January 11. Sec., Dr. W. T. Gott.
MINNESOTA: State University, Minneapolis, January 4. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.
NEW HAMPSHIRE: State Library Bldg., Concord, January 4-5. Regent, Mr. H. C. Morrison.
NEW MEXICO: Santa Fe, January 10. Sec., Dr. J. A. Massie.
NORTH DAKOTA: Grand Forks, January 4-6. Sec., Dr. H. M. Wheeler.
OKLAHOMA: Ione Hotel, Guthrie, January 11. Sec., Dr. Frank P. Davis, Enid.
RHODE ISLAND. Room 313, State House, Providence, January 6-7. Sec., Dr. Gardner T. Swarts.
SOUTH DAKOTA: Sioux Falls, January 12-13. Sec., Dr. F. W. Freyberg, Mitchell.
UTAH: State Building., Salt Lake City, January 3. Sec., Dr. G. F. Harding, 310 Templeton Bldg.
VERMONT: Montpelier, January 11-13. Sec., Dr. W. Scott Nay, Underhill.
[illegible] January 4. Sec., Dr. J. Clinton McFadden, [illegible] Bldg., Seattle.
[illegible] January 11. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Arizona October Report

Dr. Ancil Martin, secretary of the Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Oct. 4-5, 1909. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 9, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College o[illegible]geons, Los Angeles	(1909)	77.4
Atlanta [illegible] and Surgeons	(1901)	78.6
[illegible]	(1907)	76.9
[illegible], Homeopathic College	(1908)	76.6
[illegible]	(1898)	76.8
[illegible]ine, Louisville	(1903)	75
[illegible]ollege of Medicine	(1909)	79.8
[illegible]	(1880)	82
[illegible] Carolina	(1905)	87.9

Connecticut Eclectic August and November Reports

Dr. Thomas S. Hodge, secretary of the Connecticut Eclectic Medical Examining Board, reports that at a special meeting held at New Haven, Aug. 10, 1909, 1 candidate, a graduate of the New York Eclectic Medical College, 1909, was licensed through reciprocity with New York. He also reports a written examination held at New Haven, Nov. 9, 1909, including 10 subjects of 10 questions each, the percentage required to pass being 75. Only 1 candidate, a graduate of the New York Eclectic Medical College, 1909, was examined, who passed with a grade of 75 per cent.

New Jersey June and October Reports

Dr. H. G. Norton, secretary of the State Board of Medical Examiners of New Jersey, reports the written examinations held at Trenton, June 15-16, and Oct. 19-20, 1909. The total number of subjects examined in was 9; total number of questions asked, 135; percentage required to pass, 75.

At the examination held June 15-16, the total number of candidates examined was 56, of whom 47 passed and 9 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Louisville	(1906)	78.7
College of Phys. and Surg., Baltimore (1908) 81.7;	(1909)	81.7
Johns Hop[illegible]	(1907)	85.1
Baltimore [illegible] (1907) 77.9;	(1909)	87.4, 88.8
New York [illegible] College and Hosp.	(1907)	82
University and Bellevue Hospital Medical College	(1908)	82.5
Albany Medical College	(1902)	78.5
New York University Medical College	(1880)	80.8
Woman's Medical College of Pennsylvania	(1909)	81.5
Jefferson Medical College..(1895) 80.5; (1908) 75.1, 81.5, 82.5, 82.5; (1909) 83.5, 84.1, 84.7, 85 86.6, 87.5, 89.1		
University of Pennsylvania..(1892) 79.3; (1908) 84.6, 85.1, 86.2; (1909) 81.4, 84, 84.2, 84.4, 85, 85.5, 91.2.		
Hahnemann Medical College, Philadelphia..(1905) 75, 76.6; (1908) 79.6; (1909) 76.5, 76.8, 80.1.		
Medico-Chirurgical College, Philadelphia..(1901) 82.1; (1907) 75.3; (1909) 83.9, 85.8.		
University of Toronto, Ontario	(1906)	84.2
McGill University, Quebec	(1909)	89.6

FAILED

College	Year Grad.	Per Cent.
University of California	(1905)	73.2
Howard University, Washington	(1908)	71.5
Kentucky School of Medicine	(1906)	65.5
Baltimore University	(1903)	67.8
Johns Hopkins University	(1909)	*
University of Michigan, College of Medicine	(1880)	67.4
New York University Medical College	(1880)	61.2
University of Naples, Italy	(1906)	67.5, 69.9

At the examination held October 19-20, the total number of candidates examined was 34, of whom 29 passed and 5 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University, Washington	(1908)	77.2
College of Phys. and Surg., Baltimore (1908) 75.2;	(1909)	78.3
Johns Hopkins University	(1909)	84.2
College of Physicians and Surgeons, Boston	(1909)	79.6
Cornell University Medical College...(1908) 78.3;	(1909)	87.6, 87.8
Columbia University, College of Physicians and Surgeons...(1907) 88.7;	(1909)	88
University of Buffalo	(1884)	85.2
New York University, Medical College	(1881)	82.7
University of Pennsylvania	(1908)	82.1, 87
Hahnemann Medical College, Philadelphia	(1899)	75
Medico-Chirurgical College, Philadelphia...(1903) 75; (1908) 81.5, 86.4;	(1909)	85.1
Jefferson Medical College .....(1908) 77.3, 88.3;	(1909)	81.9
Vanderbilt University	(1908)	88.5
University of Vermont ...(1891) 75;	(1909)	80.8
Western University, London, Ontario	(1909)	83.8
University of Naples, Italy	(1906)	75, 75
University of Geneva, Switzerland	(1902)	81.5

FAILED

College	Year Grad.	Per Cent.
Kentucky School of Medicine	(1906)	67.6
University of Michigan, College of Med. and Surg.	(1880)	65.8
Jefferson Medical College	(1874)	65.4
Hahnemann Medical College, Philadelphia	(1908)	70.6
University of Naples, Italy	(1896)	69.3

* Percentage not given.

Maine November Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 9-10, 1909. The number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 27, of whom 22 passed and 5 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Atlantic Medical College, Baltimore	(1909)	78.6
Baltimore Medical College	(1907)	83.8
Maryland Med. College..(1905) 77.4; (1908) 82.7;	(1909)	75.5
Medical School of Maine...(1908) 88;	(1909)	78.2, 82.3
Harvard Medical School...(1892) 90.2;	(1909)	84.3
Boston University	(1909)	84.5
Tufts College Medical School...(1907) 82.1;	(1909)	82.2, 89, 90.3
College of Physicians and Surgeons, Boston	(1908)	77.2
University of Minnesota, Homeopathic College	(1908)	82.6
Dartmouth Medical School	(1909)	87.2
New York University Medical College	(1884)	75.2
Jefferson Medical College	(1909)	80.4
Laval University, Canada	(1908)	77.2
University of Toronto, Ontario	(1900)	79.7

FAILED

College	Year Grad.	Per Cent.
Atlantic Medical College, Baltimore	(1909)	*68.4
College of Physicians and Surgeons, Boston	(1908)	**69
Laval University, Canada	(1903)	*69.9
Bishop College, Montreal	(1905)	*73.1
University of Palermo, Italy	(1884)	68.6

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
University of Vermont...(2, 1904)	(1909)	Vermont

* Second examination in 1909.
** Third examination in 1909.

Montana October Report

Dr. William C. Riddell, secretary of the Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 5-7, 1909. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 51, of whom 34 passed and 17 failed. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined.
Hahnemann Medical College of the Pacific	(1909)	1
University of California	(1896)	1
George Washington University	(1906)	1
Northwestern Univ. Med. School (1903) (2, 1907)	(1908)	4
Hahnemann Med. College and Hospital, Chicago	(1896)	1
Rush Medical College...(1905)	(1907)	2
College of Phys. and Surg., Chicago...(1902)	(1908)	2
American Medical Missionary College	(1906)	1
Drake University, College of Medicine	(1909)	1
Kentucky School of Medicine	(1906)	1
College of Phys and Surg., Baltimore..(1908)	(1909)	2
University of Michigan, College of Medicine	(1909)	3
Hamline University	(1906)	1
Barnes Medical College	(1895)	1
Washington University, St. Louis	(1904)	1
Beaumont Hospital Medical College	(1892)	1
Geneva Medical College, New York	(1867)	1
Medical College of Ohio	(1903)	1
Willamett " "	(1909)	1
Jefferson " ...(2, 1904)	(2, 1909)	4
Milwaukee "	(1908)	1
McGill University, Canada...(1901)	(1909)	2

FAILED

College	Year Grad.	Per Cent.
Chicago Homeopathic Medical College	(1897)	73.3
American Medical Missionary College	(1904)	71.5
Chicago College of Medicine and Surgery	(1908)	71.7
Illinois Medical College	(1900)	72.4
Keokuk Med. College, College of Phys. and Surg.	(1908)	62.8
St. Louis University	(1909)	74.1
University Medical College, Kansas City	(1907)	71.7
Kansas City Hahnemann Medical College	(1909)	73.4
Barnes Medical College...(1899) 71.1;	(1904)	71.6
University of Kansas City	(1882)	57.3
Kansas City Medical College	(1889)	64.2
Marion Sims Beaumont Medical College	(1903)	50
Columbia University, College of Phys. and Surg.	(1908)	70.8
Milwaukee Medical College	(1907)	70
University of Toronto, Ontario	(1909)	71.9
Imperial Royal University, Prague, Austria	(1890)	67.8

Nevada November Report

Dr. S. L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 1-2, 1909. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco	(1909)	87
University of California	(1909)	85.3

New Mexico October Report

Dr. J. A. Massie, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Oct. 11-12, 1909. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 1 passed and 3 failed. Twenty-eight candidates were licensed on presentation of satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Memphis Hospital Medical College	(1901)	76.8

FAILED

College	Year Grad.	Per Cent.
Memphis Hospital Medical College	(1908)	63.7
Gate City Medical College...(1904) 62.2;	(1907)	40.2

LICENSED ON CREDENTIALS

College	Year of Grad.
Georgetown University	(1905)
Howard University	(1907)
Rush Medical College ...(1870)	(1901)
Bennett Medical College	(1906)
Kentucky School of Medicine...(1898) (1900)	(1907)
University of Louisville	(1909)
Louisville Medical College...(1893) (1901)	(1909)
Tulane University of Louisiana	(1903)
Maryland Medical College	(1903)
University of Maryland	(1895)
Grand Rapids Medical College	(1900)
Kansas City Medical College	(1900)
Washington University, St. Louis	(1892)
Barnes Medical College	(1894)
Beaumont Hospital Medical College, St. Louis	(1901)
Niagara University, Buffalo	(1896)
Cincinnati College of Medicine and Surgery	(1870)
Eclectic Medical Institute, Cincinnati	(1900)
Miami Medical College	(1897)
Starling Medical College	(1903)
Jefferson Medical College	(1906)
Hahnemann Medical College, Philadelphia	(1888)
Vanderbilt University	(1888)

Wyoming October Report

Dr. S. B. Miller, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, Oct. 20-22, 1909. The number of subjects examined in, 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1906)	81.7
Northwestern Univ. Med. School....(1908) 78.6;	(1909)	82.5
Geneva Medical College, New York	(1867)	75
Jefferson Medical College	(1906)	82.4

Book Notices

TUBERCULOSIS. A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention and Treatment. Edited by Arnold C. Klebs, M.D. Cloth. Pp. 939, with 3 colored plates and 243 text illustrations. Price, $6. New York: D. Appleton and Company, 1909.

So wide-spread is the present-day interest in tuberculosis, even among the laity, that a work such as this one, dealing with the subject from a practical point of view, with emphasis on the details of treatment and diagnosis, is certainly timely. That there has been an effort made to bring the book up to date is seen by the addenda to the articles of several of the writers, including summaries of some of the more important facts brought out at the recent International Congress on Tuberculosis at Washington. The various articles are contributed by men eminently qualified by experience and special training to speak with authority in their special subjects. From such men as Lawrason Brown, Baldwin, Hektoen and Ravenel, not to mention others we expect only the best and are not disappointed. Hektoen's brief but clean-cut discussion of tubercle and morbid anatomy, and Brown's detailed account of specific treatment are especially worthy of comment. To Dr. Charles L. Minor of Asheville has fallen the task of handling the important topic of symptomatology and diagnosis. His thorough familiarity with the practical aspects of pulmonary tuberculosis is clearly seen, and his contribution, covering nearly one-third of the text of the entire book, is valuable. In fact, he and two others, Knopf and Brown, have written one-half of the book and have done their work well. It goes without saying that few are better qualified to discuss public measures in the prophylaxis of tuberculosis than Dr. Knopf. While these few are mentioned by name, it is not to be inferred that the other articles are not praiseworthy; most of them are. Brief but good discussions of surgical tuberculosis are included in some seventy pages, the writers being McArthur of Chicago and Freeman of Denver. We wish we did not feel that the names of well-known men had been used for the purpose of adding prestige to the book and of increasing its sales to the unwary, who may imagine that they are buying a work containing valued contributions by these well-known men. Osler, Trudeau, Biggs and von Pirquet are attractive names on the publisher's advertisement, but he who buys because of the attractiveness of these names may be disappointed when he finds that Osler has written but eight pages of historical introduction, Trudeau two and a half pages introducing the subject of treatment, von Pirquet some seven hastily prepared pages on tuberculosis in children, and Biggs about five hundred words on prophylaxis. All that these men say is, of course, to the point, but we feel just a wee bit of resentment at what seems to smack a little of publishing trade sharpness.

A very commendable feature is the appendix containing an article by Dr. Mary Lincoln on the tuberculin opsonic index, and leaflets of instruction to teachers (Goodall) and mothers (Kress). Knopf's instructions to physicians and his illustrations of devices for the prevention of tuberculosis are of extreme value. A bibliography has been compiled containing some 3000 selected titles.

The book as a whole is reliable, written in a scientific spirit by well-qualified men, and is well adapted to the practitioner.

THE THIRTEENTH, GREATEST OF CENTURIES. By James J. Walsh, M.D., Ph.D., LL.D., Dean and Professor of the History of Medicine and of Nervous Diseases at Fordham University School of Medicine. Cloth. Edition 2. Pp. 458, with illustrations. Price, $2.50 net. Catholic Summer School Press, 110 W. 74th St., New York City.

This book represents a digest of summer school lectures. In the first edition, long citations from authorities and the multiplication of notes at the bottom of the pages were avoided. In this edition, however, two appendices have been added, the first giving a summary of the history of the period, the second consisting of "Criticisms, Comments and Documents," which add materially to the value of the work. The sociologic facts cited are of particular interest. It is stated that in the thirteenth century a workman could obtain a pair of hand-made shoes for his daily wage—four pence. The author considers the eighteenth the "lowest of centuries."

Marriages

ISADORE COHN, M.D., to Miss Millie Simon, both of New York City, November 24.

EDWARD A. GUYNES, M.D., to Miss Emma Meyerhoff, both of Knoxville, Tenn., December 29.

GUY CARSON KINNAMAN, M.D., Chicago, to Miss Ivy Irene Brown, of Morrison, Ill., December 29.

EDWIN F. STANNUS, M.D., to Miss Osa Eolia Miller, both of Quincy, Ill., at St. Louis, December 16.

ROBERT W. HORTON, M.D., Raleigh, N. C., to Miss Lillian Jordan, at Centre Hill, Va., December 16.

CHARLES EDWARD RYDER, M.D., U. S. Navy, to Miss Ellen Friend Balch Upton, of Boston, December 15.

JOHN SIDNEY EASON, M.D., Savage, Miss., to Miss Willie Glenn Evans, of Courtland, Miss., December 8.

WILLIAM H. POWELL, M.D., Kasota, Minn., to Miss Carrie McConkey, of LeSueur Center, Minn., December 9.

HENRY EDMUND TISCH, M.D., Wheatland, Wyo., to Miss Eva M. Hanna, of Delphi, Ind., at Denver, December 16.

ROMNEY EMERSON JOHNSTON, M.D., Bridgeport, Okla., to Miss Helen Sanburn, of Edinburg, Ind., December 14.

WILLIAM CLOVIS CUMMINGS, M.D., Oklahoma City, Okla., to Miss Anna Mabel Cater, of Guthrie, at El Reno, Okla., December 14.

MAZYCK PORCHER RAVENEL, M.D., Madison, Wis., to Miss Adele P. Vander Horst, of Charleston, S. C., December 28.

THURSTON WILLIAM WEUM, M.D., Duluth, Minn., to Miss Evelyn Zoe Schaffnit, of Denver, at Colorado Springs, December 15.

Deaths

Henry Martin Weeks, M.D. New York University, New York City, 1873; a member of the American Medical Association; at one time president of the American Association for the Care and Treatment of Epilepsy; assistant physician and pathologist at the State Hospital for the Insane, Trenton, N. J.; for ten years superintendent of the State Epileptic Village, Skillman, N. J.; and later superintendent of the Eastern Pennsylvania State Institution for the Feeble-Minded and Epileptic, Spring City; died at his home in Spring City, December 17, from heart disease, aged 59.

William Elliott Jeffries, M.D. Miami Medical College, Cincinnati, 1875; of Indianapolis; a member of the American Medical Association and an honorary member of the Indiana State Medical Association; president of the Indianapolis Medical Society in 1903; and secretary of the Board of Health of Indianapolis in 1879-1880; was struck by a street car in Indianapolis, December 4, and died a few minutes later, aged 68.

Robert Millar, M.D. University of Pennsylvania, Philadelphia, 1861; a member of the Rhode Island Medical Society; assistant surgeon of the Fourth Rhode Island Volunteer Infantry, and afterward division surgeon during the Civil War: for twenty-one years visiting surgeon and thereafter consulting surgeon to the Rhode Island Hospital; died at his home in Providence, December 17, from cerebral hemorrhage, aged 74.

William H. Gordon, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1888; surgeon of the American Steel and Wire Company at Rankin, Pa.; secretary of the local board of health, and one of the directors of the medical staff of Braddock General Hospital; died at his home in Rankin, October 27, from meningitis, following a fall from a street car two weeks before, aged 45.

Charles Green, M.D. Columbus (Ohio) Medical College, 1879; College of Physicians and Surgeons, New York City, 1880; of Greenville, Del.; a member of the Delaware State Medical Society; died in the University Hospital, Philadelphia, December 13, from the effects of a fracture of the spine, received June 16, in a collision between his carriage and an automobile, aged 51.

John Frank Liken, M.D. Western Pennsylvania Medical College, Pittsburg, 1894; of Toledo; a member of the Ohio State Medical Association; a member of the staff of St. Vincent's Hospital; and one of the commissioners for a pure milk supply; died in St. Vincent's Hospital, December 11, two weeks after an operation for appendicitis, aged 45.

Sidney C. Lankford, M.D. University of Nashville, Tenn., 1876; a member of the State Medical Association of Texas; died at his home in Sherman, December 6, from cerebral hemorrhage, aged 58. At a meeting of the Grayson County Medical Society, held December 8, resolutions of respect and condolence were adopted.

James W. McGee, Sr., M.D. University of Pennsylvania, Philadelphia, 1860; a member of the Medical Society of the State of North Carolina; assistant surgeon in the Confederate Service during the Civil War; died recently at his home in Raleigh, from heart disease, aged 70, and was buried December 7.

Oscar K. Richardson, M.D. University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1893; profesor of medical economics in that institution; a member of the staff of the Minneapolis City Hospital; died at his home in Minneapolis, December 10, from cerebral hemorrhage, aged 41.

Eugene G. Wood, M.D. College of Physicians and Surgeons, San Francisco, 1900; a member of the American Medical Association; a veteran of the Spanish-American War with service in the Philippine Islands; was shot and instantly killed while stepping into his automobile in Oakland, Cal., December 9, aged 40.

George Lone Everall, M.D. State University of Iowa, Iowa City, 1896; of Clinton; a member of the Iowa State Medical Society; local oculist and aurist to the Chicago and Northwestern Railway; died at the home of his father in Farmersburg, Iowa, December 8, from cancer, aged 35.

Theodric Birchett Twitty, M.D. New York University, New York City, 1868; a member of the Medical Society of the State of North Carolina; a Confederate veteran; state senator for four terms; president of the Commercial Bank of Rutherfordton; died at his home, December 10, aged 67.

John Terry Poole, M.D. Medical College of the State of South Carolina, Charleston, 1857; a member of the South Carolina Medical Association; surgeon in the Confederate Service during the Civil War; died at his home in Laurens, December 14, from senile debility, aged 73.

E. G. Williams, M.D. Kansas City (Mo.) Hospital College of Medicine, 1885; for fifty-two years a practitioner; a member of the Kentucky State Medical Association; died at his home in Rocky Hill Station, December 12, from heart disease, aged 73.

George Dillwyn Cook, M.D. Medical School of Maine, Brunswick, 1866; of North Vassalboro, Maine; a member of the Waterville Clinical Society; died suddenly at the home of his son in Augusta, Maine, September 15, from heart disease, aged 68.

James Chester Knapp, M.D. New York Homeopathic Medical College and Hospital, New York City, 1884; for fifteen years superintendent of the Geneva (N. Y.) Hygienic Institute; died in that institution, December 11, from nephritis, aged 56.

Paul McM. Salley, M.D. Medical College of the State of South Carolina, Charleston, 1888; a member of the South Carolina Medical Association; and intendant of the town of Pinewood; died at his home, December 12, from hemorrhagic fever.

Charles Lindberg, M.D. Minneapolis College of Physicians and Surgeons, 1905; of Fairdale, N. D.; was injured while trying to board a moving passenger train at Adams, N. D., December 7, and died on the following day, aged 35.

John William Ringer, M.D. University of Michigan, Ann Arbor, 1885; a member of the Ohio State Medical Association; died at his home in Cambridge, Ohio, December 12, a year after a surgical operation, aged 55.

John Franklin Ford, M.D. Vanderbilt University, Nashville, 1905; a member of the State Medical Association of Texas; died at his home in Decatur, from septicemia, following the extraction of a tooth, aged 28.

Daniel Bailey Rees, M.D. King Eclectic Medical College, Des Moines, Iowa, 1884; of Des Moines, Iowa; died at the home of his daughter in Buena Vista, Colo., December 1, from disease of the kidney, aged 85.

Timothy F. Matheny, M.D. Medical College of Fort Wayne, Ind., 1878; a member of the Indiana State Medical Association; died at his home in Auburn, Ind., December 9, from asthma, aged 79.

John Bogardus Hull, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died at his apartments in Boston, December 9, from cerebral hemorrhage, aged 82.

Joseph Blackwood Strachan, M.D. Jefferson Medical College, Philadelphia, 1858; of Princeton, N. C.; died suddenly on a train near Princeton, November 24, from heart disease, aged 76.

Anderson Wilmer Jones, M.D. Jefferson Medical College, Philadelphia, 1890; of Lexington, Ky.; died at the home of his father-in-law near that place, October 22, aged 43.

James Monroe Rigney, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; died at his home near Evona, Iowa, May 22, from chronic ileocolitis, aged 54.

George William Strong, M.D. Eclectic Medical College of the City of New York, 1882; of New York City; died at his home, November 7, from cerebral hemorrhage, aged 73.

Oscar Martin Duncan, M.D. University of Louisville (Ky.), 1907; formerly of Bridgeport, Ill.; died in Bay St. Louis, Miss., October 23, from bronchopneumonia, aged 34.

Rensselaer Platner, M.D. Albany (N. Y.) Medical College, 1846; health officer of Germantown, N. Y.; died at his home, November 19, from senile debility, aged 87.

Elisha M. Dunham, M.D. Physio-Medical Institute of Cincinnati, 1870; died suddenly at his home in Grand Rapids, Mich., December 10, aged 61.

Benedict Dallas Bucher, M.D. Jefferson Medical College, Philadelphia, 1871; died at his home in Lebanon, Pa., December 7, from dropsy, aged 76.

Josiah Raymond Kelly, M.D. University of Michigan, Ann Arbor, 1872; died at his home in Quincy, Ill., July 2, from dysentery, aged 62.

Amos A. N. Clark, M.D. St. Louis Eclectic Medical College, 1882; died at his home in Denver, December 10, from pneumonia, aged 81.

John L. Cooper, M.D. University of Pennsylvania, Philadelphia, 1877; died at his home in Albany, N. Y., December 12, aged 52.

George H. Cook, M.D. Jefferson Medical College, Philadelphia, 1851; died at his home in McDonald, Pa., December 12, aged 82.

William Coburn, M.D. Victoria College, Cobourg, Ont., 1864; died at his home in Oshawa, Ont., October 27, from paralysis, aged 72.

Neil McKinnon, M.D. McGill University, Montreal, 1895; died at his home in Alpena, Mich., December 12, from heart disease, aged 37.

Robert T. Barton, M.D. Medical College of Georgia, Augusta, 1856; died at his home in Wrens, Ga., December 1, aged 77.

Society Proceedings

COMING MEETINGS

Medical Society of State of New York, Albany, January 25.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-second Annual Session, held at Hot Springs, Va., Dec. 14-16, 1909

The President, Dr. Stuart McGuire, Richmond, Va., in the Chair

Surgical Junk, Demanding Surgical Interference

Dr. Joseph Price, Philadelphia: A short time ago a patient asked me to reopen her abdomen, and to correct, if possible, a distressing condition that she could bear no longer. The abdomen had been opened three times—a pelvic operation followed by two gall-bladder operations. She complained bitterly of a griping sensation in the epigastric region; followed by nausea and starvation. In six days I have reopened four abdomens for post-operative, pathologic and operative sequelæ. Numbers of these patients are objects of pity and mercy; all are objects of charity. One of the number had had the abdomen opened eight times. Fortunately the late operations were complete procedures, the reproductive organs and appendix were gone, leaving only a ventral hernia, omental and bowel adhesions to be freed. One of the late operators drained the gall-bladder, leaving a fistula and distressing adhesions. I liberated the stomach, bowel and other adhesions, exposing the gall-bladder, disorganized and charged with pus; its clean removal will probably result in a cure.

Dealing with surgical junk requires more than the ordinary hospital apprenticeship. The operations done by pioneers in abdominal surgery were free of operative sequelæ. The percentage of recoveries was good in the country. I had the opportunity of seeing a large number of the patients operated on by members of the first school of abdominal surgeons. They constituted an interesting group of patients, none complaining of those common symptoms of modern operations. The high death-rate in the hands of some few operators explains surgically the distressing condition of the few who do recover, but command more surgery. A distinguished specialist in gall-bladder disease lost four patients in a series of five. I reopened the abdomen twice in the fifth patient. I thought I could relieve him by freeing the adhesions in the first attempt. In the second I removed the diseased gall-bladder and placed the viscera in normal relation. The man is now useful, healthy and comfortable. Junk surgery will shorten the lives of the old surgeons if they have the courage to do it. It will also injure their reputations; it gives a mortality that few operators can stand. The young, unschooled surgeon cannot do it. He cannot begin it or complete it. It results disastrously both to his reputation and to his patient, and again he is counseled not to attempt it. Recently I received a letter from a young surgeon, asking me to take a patient, or tell him how to deal with the case. The woman had had two or three gall-bladder operations, followed by fistulas, and is now septic, and asking for relief. I wrote him: "I don't want her; hands off." He came to me the following day for instruction. I said: "Go ahead, remove the gall-bladder if you can find it, and drain." He is a painstaking young surgeon, but I am satisfied that he will not find that gall-bladder. It is needless to detail the variety of pathologic complications from the pelvic basin to the pyloric orifice of the stomach in the great variety of surgical afflictions found between those two points; but if dealt with scientifically, according to our surgical lights, junk will not be the result. Again, in the suppurative forms of disease of the pelvic viscera above the head of the cecum, and on up to the suppurations about the liver, the advanced thinkers and workers have given us perfected procedures, and, if practiced completely and scientifically, but few uncomfortable sequelæ will follow. It is exceedingly rare to get junk from the operating tables of the expert. I rejoice that there is prolonged and painstaking effort on the part of the clinical schools to correct the common errors and calamities. We must have more prolonged hospital apprenticeships for our young men. All graduates should go through a hospital. All hospitals should be made clinical schools, and from this clinical schooling, on top of a thorough scientific education, we will get a new class of practitioners, better pathologists and better diagnosticians. The resulting thoroughness, scientific and clinical, will give us a stronger profession with better judgment, and a confidence in communities that we do not now possess. All junk surgery is uncertain; it may be simple or it may be too complicated for completion. Good numbers of masterful operators have been prompted by their good judgment to give up prolonged and painstaking efforts.

DISCUSSION

Dr. Lewis S. McMurtry, Louisville: Dr. Price has called attention to one of the greatest evils prevalent at this time in relation to abdominal surgery. When this association was first organized it was far more difficult for men who were not qualified to do abdominal surgery than at the present time. To illustrate: Let us take any well-appointed hospital in any city in this country and it has a well-appointed operating-room. There is a nurse who is well-qualified to prepare patients for operation and who understands the technic of modern aseptic surgery and an operator who has no operative skill can put on a pair of rubber gloves that have been boiled and, if the preparation has been carried on by this competent nurse, the operator can open the abdomen of the patient, stir around in there a good deal, and the patient may not die. Fifteen or twenty years ago if an operator undertook to do this kind of work the patient would die of sepsis. The surgeon could not clean his hands, he did not have the facilities of the modern hospital and sepsis was the result and that soon finished his career. At present more men are doing tyro-surgery in the abdomen than before. Men without having served any apprenticeship undertake surgical operations which Dr. Price has characterized as junk, in that they are incomplete and done by men who are not qualified to do them. Hence, patients go to surgeons with adhesions of all kinds and ptosis of the viscera and other troubles. It is the duty of members of an association like this publicly and privately to condemn men entering on this work without having served an apprenticeship and without being properly qualified before they undertake it.

Dr. A. Vander Veer, Albany, N. Y.: I always feel that there is a certain amount of risk in encouraging abdominal surgery in small hospitals because much of the work is necessarily done by men who have not served a sufficiently long apprenticeship to do the work thoroughly and completely. Not infrequently a correct diagnosis is not made and incomplete operations are undertaken which do not reflect credit on American abdominal surgeons. Within ten or fifteen years there has been a desire on the part of younger surgeons to do as many operations as they can on a particular patient. I have seen many cases that have terminated in what Dr. Price has termed surgical junk. This paper is not only timely, but deals with a subject to which we should pay more attention than we do. It is the kind of paper for the younger surgeons to read carefully.

Dr. William M. Polk, New York City: The trouble with some of us is that perhaps we have been endeavoring to work out pathologic problems on live subjects and in so doing we may have left conditions within the abdomen in our endeavor to preserve structures, and so forth, that really had no business there. I find that the average person has been so well-educated that his or her mind is made up as to what they wish the physician to do long before they interview him and if he fails in any way to fall in with their preconceived notion they at once go elsewhere. We all know that a great many of the younger members of the profession have not that stiffness of spine that comes with age, that kind of ankylosis of the vertebral column which is beneficent in its influence and which comes with age and experience.

Adhesion of Sigmoid to the Tube and Broad Ligament as a Cause of Pain in Salpingitis

Dr. Hubert A. Royster, Raleigh, N. C.: The Fallopian tube is the most frequent seat of inflammatory disease in the pelvis. It is the narrowest portion of the channel from the vulva to the ovary and is the least resistant to infection. Pain there is more concerned with salpingitis than with ovaritis, whether attended by a gross lesion or not. Too many times the ovary has been regarded as the offending organ, and needlessly removed. In some instances a diseased tube has been blamed as the sole cause of pain, while other factors produced by the salpingitis, or arising independently of it may be overlooked. A little less than three years ago I had a case which bears on this question.

Mrs. S., aged 30, married seven years, had given birth to one child about a year before. Previous to that she had had an abortion performed, on account of pernicious vomiting. Several weeks before I saw her the same thing had been done again, for the same reason. For two or three years she had suffered from typical tubal dysmenorrhea, the pain beginning a week before the flow and continuing throughout the period. Intermenstrual pain was constant, and referred chiefly to the left iliac region; there had been several slight attacks of pelvic peritonitis. Defecation was particularly distressful. Almost every day the patient was taking morphin or heroin. Examination revealed extreme tenderness in both sides of the pelvis, especially the left. A diagnosis of chronic salpingitis was made. At operation, March 28, 1907, both tubes were found tortuous and thickened, and were removed; their removal was considered justified in view of the history. The ovaries were cystic. I removed the left and excised two-thirds of the right one. In bringing up the left tube for inspection I found that the sigmoid flexure was adherent to its fimbriated end, and also to the upper surface of the broad ligament.

These adhesions were carefully divided, and the raw areas were closed by fine catgut sutures. The result was all that could have been expected. The patient immediately improved, but not until six months had passed was she really relieved. She is now entirely well, menstruating regularly without pain.

I have the records of eight similar cases in which the sigmoid adhesion was apparently the sole source of left-sided pelvic pain. I am convinced that the condition is one to be reckoned with. Its association with salpingitis or other disease of the pelvis cannot, as a rule, be determined beforehand, but it may be suspected in the absence of other lesions, to account for the suffering and more especially in the presence of painful defecation. This has been a constant symptom in the instances which I have observed. When discovered the adhesion must be dealt with as seems proper in the given case. After snipping the bands which fix the sigmoid to the broad ligament there are left two triangular raw surfaces, one on the bowel and the other on the ligament, with their bases together; these form a diamond-shaped area. The peritoneal edges are then closed over this space by continuous catgut, applied from below upward. The sigmoid is thus allowed to drop lower down into the pelvis, away from the tube and ligament, a maneuver which, in my opinion must be executed to secure permanent relief. Covering all denuded places is not less important. In one patient who had also a chronic cystitis, cured by a vaginal cystotomy, I failed to close the raw area as well as I should have done, and she is still, now and then, having pain on defecation, undoubtedly because of the reforming of adhesions. This is the only case of the nine that, so far as I know, has not been relieved.

DISCUSSION

Dr. Henry T. Byford, Chicago: When a patient presents herself with pelvic disease I always ask her whether she has pain or not on defecation. Then I ask if there is any mucus in the stools. I think that there is frequently mucus in the stools in such cases, but not the abundant mucus which comes from a general colitis, nor the tendency to tenesmus with mucus that comes from inflammation low down in the rectum. There is pain on defecation, particularly when these patients are at all constipated. In connection with the symptoms, if the pain is in the iliac region there will be found adhesions to the sigmoid flexure. In another class of patients there is pain in the back, and no pain in the iliac region. The cases are apt to occur in women who are constipated and who have a distended colon or sigmoid flexure, and the giving of laxatives and perhaps strychnin and other remedies to tone up the condition of the alimentary canal with proper diet would be sufficient rather than to think of any surgical procedure in the ordinary cases.

Dr. Robert T. Morris, New York City: There is one place where the surgeon should allow adhesions to remain, namely, in his subliminal mind. There is no one thing more overlooked in my experience than peritoneal adhesions and their influence. Dr. Royster likes to close raw surfaces by continuous sutures. We save time by one of two methods. The commonest one which I have used is to sprinkle aristol (thymol iodid) over the raw surface and wait until lymph accumulates and engages the aristol in a mesh. This acts as an obstacle to further adhesion, and I have found it satisfactory in my experiments on animals. The other method is the use of the sterilized animal membrane. That takes a little longer, but in such a case as Dr. Royster has described, aristol powder would engage itself in the lymph coagulum and present an excellent mechanical obstacle to readhesion.

Dr. Thomas S. Cullen, Baltimore: I have a patient at present who has complained for 5 or 6 years of severe constant pain in the left side. On opening the abdomen I found the uterus perfectly normal. The tubes and ovaries showed no alteration; there was no thickening of the ureter. In making a closer examination of the sigmoid I found it adherent to the entire left broad ligament, extending as far forward as the round ligament. A procedure was adopted similar to the one described by Dr. Royster, that is, freeing the adhesion as thoroughly as possible and closing the raw surface of the broad ligament by a continuous catgut suture and the raw surfaces of the rectum by interrupted suture, on account of which slight tearing is not so likely to occur.

Dr. I. S. Stone, Washington, D. C.: In opening the abdomen for tuberculous peritonitis and allied conditions we can never hope to separate all adhesions in such cases. It would be folly to try to do it. There are many women who have extensive adhesions, one organ being thoroughly adherent to its fellow, yet there may be no pain on defecation, or at any time. Where are we to stop in separating adhesions when we have such cases as that? Not long ago a woman came to me with a history of pain in the scar of a former operation. She had been operated on in Paris by an eminent surgeon; a consultation with three physicians was held. There was pain in the cicatrix and that was about all the woman could tell. The majority voted in favor of opening the abdomen to release the adhesion. When the abdomen was opened a slender adhesion of the omentum was found. The family was told that adhesions were found and separated. What else could they be told? The patient suffered precisely the same as before the operation. I find I am getting excellent results from operating on patients and placing the bowels in the very best condition I can for continuous passage of flatus and feces. I have separated adhesions of the sigmoid and in some cases have been astonished to find not only the greatest improvement, so far as pain and local distress are concerned, but in the general improvement of the patient, when the sigmoid has been sutured up out of the pelvis, where there should be continuous passage of the flatus and gas, instead of more or less obstruction, produced by a circular folding or duplication of the sigmoid in the pelvis. Such an operation as that has given me more satisfaction than the mere separation of adhesions.

Dr. W. P. Carr, Washington, D. C.: We have all seen cases in which there were a great many adhesions and no pain, and in other cases in which there was a slight adhesion with a great deal of pain. It is the situation of the adhesion and not the extent of it that causes trouble. A patient experiences great pain when there is a slight strong adhesion attached to a small area of some movable organ; whereas in the case of an extensive adhesion to a large surface the weight is sustained without any pain whatever. The most painful adhesions have been those where there was a small band pulling on some point of a movable organ. I have seen a number of such cases and have relieved the patient by separating the adhesions not larger than a lead pencil. On the other hand, large adhesions, especially around the liver and the stomach, do not seem to produce any pain.

Dr. H. Royster, Raleigh: I am glad Dr. Byford mentioned the discharge of mucus, because that is very important. The question then arises in such a case: Is not the intestinal condition the cause of adhesion rather than the pelvic disease? When the adhesion is due to intestinal stasis the discharge of mucus is a prominent symptom, but when it is secondary to pelvic disease, mucus is not a prominent symptom.

(To be continued.)

AMERICAN ACADEMY OF MEDICINE

Third Mid-Year Meeting held at New Haven, Conn., Nov. 11-12, 1909

(Concluded from Vol. liii, page 2126)

THE PARENT THE STRATEGIC POINT OF THE PRESENT

The Division of Child Hygiene and the Reduction of Infant Mortality in the City of New York

Dr. Thomas Darlington, health commissioner of New York, emphasized the importance of preventive measures in the hygiene of infancy and childhood. Efforts for the reduction of infant mortality should be followed by those tending toward the preservation of the health of the child. Correlation of all activities relating to child health in New York City by the formation of a Division of Child Hygiene includes the supervision of midwives, control of the boarding out of foundling infants, inspection of day nurseries and institutions harboring children, instruction of mothers in the care of babies, medical inspection and examination of school children and issuance of employment certificates, thus maintaining supervision of the health of children from birth to puberty. Educational measures are important in public health work. The most essential feature is personal instruction in the home. There was a marked decrease in the death-rate from diarrheal diseases, particularly during the past summer.

The Three Years' Experience of the Babies' Dispensary and Hospital of Cleveland in the Education of the Mother

Dr. H. J. Gerstenberger, Cleveland, described the methods used by the Babies' Dispensary and Hospital designed to promote nursing and regular visits by the mother to the dispensary for prophylactic advice by the physician, and gave a critical study of the value of these methods by statistical determination of the results obtained in 201 cases referred to the dispensary soon after birth by obstetric dispensaries. He also took up the question of giving premiums, as carried out in Germany, to promote regular attendance and nursing. He emphasized the desirability of a system by which the relatively large loss of families through moving could be avoided.

An Outline for the Study and Prevention of Infant Mortality for Boards of Health of Small Cities

Mr. Selskar M. Gunn, health officer, Orange, N. J., discussed the necessity for small cities taking more interest in the study and prevention of infant mortality, and laid stress on the value of a thorough study of the problem from the statistical point of view. He also took up the causes of death, so-called "unavoidable causes" and causes recognized as preventable. He then went on to consider: The necessity for the Board of Health having good relationships with the Bureau of Charity, Diet Kitchen, Visiting Nurses' Settlement, etc.; how to reach the mother as soon as possible after the birth of her child; difficulties of educating young women in the principles of sex hygiene, maternity and the care of infants before their marriage; the work of the visiting nurses; the importance of hospitals and dispensaries; other branches of public health work that must be carried on; a plea for an organized campaign in small cities as there has been in some of the larger communities.

Discussion on Papers of Drs. Darlington and Gerstenberger, and Mr. Gunn

Dr. J. S. Neff, Philadelphia: New York sets the rest of the country an example in the control of the subject by the municipality. The key to the solution of the whole problem lies in the home, and in the application of methods similar to those described by Dr. Darlington. The mortality in Philadelphia of children under 5 years is 30 per cent. of the total mortality, and if congenital malformation and accidents of birth are eliminated and deaths from disease only are considered, it is found that 83 per cent. of these deaths, or 64 per cent. of the total death-rate, come from preventable causes. The campaign of prevention and education should be conducted through the board of health, as in New York. No appropriation being available for such an undertaking in Philadelphia, a movement termed the Babies' Alliance was organized two years ago, under the control of the Department of Health, the Board of Public Education, the Congress of Mothers, the Home and School League and kindred societies. Under the direction of the alliance, committees and subcommittees have been formed. The city is districted and the entire city is under the supervision of the committee. The names of mothers are given to the committee immediately on the birth of a child and visits of instruction are paid. Two years' work has resulted in a decrease of 7 per cent. in the mortality rate among infants. The examination of and instruction of midwives by the board of health is included in a plan lately inaugurated in Philadelphia.

Dr. John M. Connolly, Boston, said that emphasis is laid on breast feeding in the work of the Boston milk committee. He favored granting a pension temporarily to a wage-earning mother to enable her to stay at home and nurse her baby. Classes for the instruction of the fathers as well as of the mothers have been found to be productive of good results.

Prof. Irving Fisher, New Haven, Conn., spoke from the standpoint of the statistician. Infant mortality is a problem to day, largely because of the decline of the birth-rate, and the real problem of infant mortality is connected with the birth-rate quite as much as with the death-rate. The parent is the strategic point to-day, especially because the parent is exercising volition which was formerly not exercised in regulating the birth-rate, and this volition must be matched by a corresponding change in the death-rate. An interesting report of the Royal Commission in New South Wales was published about a year ago on the decline of the birth-rate in New South Wales, and the problem of infant mortality in their relation the one to the other. It was found that the birth-rate in New South Wales had declined something like 25 per cent., and that a corresponding decline, though to a lesser degree, has been going on in other parts of Australia, and in fact throughout the civilized world. There are two problems that come out of this, of world-wide importance. While we are fixing our attention on preventing infant mortality from the standard of the individual, we will forget that the important point is from the standard of the race, and the two problems which confront races are depopulation and degeneration. It would not be at all impossible that a country, and large classes of country, should gradually decline in numbers. In fact, college graduates have shown this tendency already, so that the birth-rate among college graduates, so far as statistics of the size of families enable us to judge, show that graduates of Yale, of Wellesley, of colleges for both men and women, so far as there have been any records throughout the country, are declining. They are not keeping up their end in the population. And if this should extend to the whole population there will be either depoplation or the necessity of improving the death-rate to keep the equilibrium. If it should ever happen that the better class, by which I mean the vitally better class, should refuse to keep up their end in the population, and the worst classes, the criminal and defective classes, should multiply, in the haphazard way in which animals and hitherto men have multiplied, there will be inevitable degeneration. These seem to me to be the great problems that come out of the birth-rate, and the problem of infant mortality is one of them. If we are to keep our population going and keep it from degenerating, we must prevent this needless waste of human life. There are so many factors that enter into the case it is impossible to say to-day whether a decrease is going on. The statistical record in Great Britain was inconclusive, and there is no corresponding record in this country, and we do not know whether we are decreasing in numbers except for the immigration, as that covers it up, or whether we are degenerating in quality.

In this connection I would like to emphasize a point that is very close to my heart, not the problem of infant mortality, but of health in general, and the problem of eugenics which is largely dependent on information to be obtained through the improvement of the federal organization of health at Washington. A great deal has been said in regard to the local work and in regard to the private institutions. But those agencies are relatively small as compared with the power of the federal government. Moreover, they are incomplete, because we never can get a broad view of the population, and the relation of birth-rate to death-rate in the population, until we get a large area. If we could have a federal organization of health at Washington to cooperate with the magnificent work that is being done in New York, Philadelphia and other cities, and the private work, such as has been illustrated in Cleveland, we might hope for the information on which any rational solution of the questions of population, depopulation and degeneration could be solved. It seems to me we need at Washington a bureau of child hygiene, a bureau of health to work in cooperation with the other agencies which have been spoken of this afternoon.

Dr. H. I. Bowditch, Boston: The first essential toward a solution of the problem of the prevention of infant mortality is the enactment and enforcement of legislation requiring the accurate registration of births. And registration should be followed up by boards of health as suggested by Mr. Gunn.

Mrs. W. L. Putnam, Boston, described the methods by which the infant social service department of the Woman's Municipal League of Boston cares for dependent mothers and children; giving especial attention to the instruction of the mothers in the care of the children.

Dr. W. A. Evans, Chicago: The problem is a large one and its full solution will require the solution of great questions of political economy. Until some health officer tackles the underlying questions of political economy, no satisfactory solution of the problem will be reached. What is needed now is cooperation between the boards of health and the people themselves, the mothers especially. How to get at the mother and through her to get at the child is the great problem. The success in New York has been largely due, he said, to the fact that the board of health had rid itself of the idea that the baby to be sought after was of necessity a sick baby; and realized that it is the baby that has just been born that needs attention, concentrating for the time being on that baby in which there is the greatest coefficient of sickness. The philosophy of the situation would mean that before the problem is settled we must come back to the people before the babies are born; and to the circumstances of society that are responsible for the conditions into which the baby is born.

Dr. I. S. Wile, New York: A better foundation could not be laid for the hygienic education necessary for the prevention of infant mortality than by utilizing our educational institutions, by beginning with a rational series of well-devised courses in hygiene in our public schools.

Dr. Helen C. Putnam, Providence: For a quarter of a century there has been talk about teaching children hygiene; but the teachers should be taught first.

Dr. Holmes, Newark, N. J.: A plan has been tried in Newark in accordance with which lectures have been given on hygiene and on diseases common to school children by the school inspectors. This year the lectures are to be given by men outside the force of inspectors. There are also evening classes on nursing conducted by physicians for mothers or for any who wish to attend.

WHO SHOULD AND WHO SHOULD NOT BE PARENTS

Fit and Unfit Matings

Prof. C. B. Davenport, director of the Station for Experimental Evolution, Long Island, N. Y.: Greater precision in predicting hereditary transmission has been acquired since the establishment of the principles that human characteristics are inherited separately of one another; that they do not blend in heredity; and that when an elementary characteristic is absent from both parents it will be absent from all children. Wherever an undesirable abnormality is due to an hereditary factor, as it is in short fingers, hereditary cataract, night-blindness, polydactylism, syndactylism or "lobster clawed" hand, and perhaps, diabetes, normal offspring of strains in which the defect is hereditary will never have abnormal children. But in cases in which the undesirable condition is due to the lack of some characteristic normally present, the children of two similar abnormals will be abnormal as in albinism, imbecility, and certain forms of weakness in the mucous membranes.

The Limits of Eugenics

Prof. Albert G. Keller, professor of the science of society, Yale University: The ultimate limits of the application of any social innovation lie in the customs, conventions and habitudes of the society in question—lie, in a word, in the folkways. Galton, in his desire to introduce eugenics "into the national conscience like a new religion" really wishes to get eugenics in among these elemental conventions and habitudes. To understand, then, the limits set to his enterprise, it is needful to consider the nature of the latter and the mode of their origin. This has been worked out in masterly fashion by Prof. W. G. Sumner in his volume called "Folkways." The folkways are really uncodified societal conventions and habitudes, sanctioned by religion and including a judgment that they are conducive to societal welfare. They grow up naturally throughout human history; the origin of all the most elemental are lost in hoary antiquity; they are not products of study and reason, and are not amenable to rational criticism or alteration. Passing fashions are the less inveterate of the folkways. Attempted alterations of so elemental a body of conventions and prejudices as has grown up about a function so elemental as that of procreation are sure to meet the solid inertia of human prejudice and blind conservatism. Hence these ultimate limits are likely to come into evidence and should be understood. What eugenists can do, in this "age of reason," is to combat the grosser manifestations of counter-selection or breeding from the unfit, through the means of legislation and education. Sympathy for the unfortunate unfit should not extend to the granting of the right of procreation, by which the parental unfitness is perpetuated at the expense of the fit who, at the very least, are taxed to afford the relief given. Here, too, any hurried or radical enterprise (*e. g.* the abrupt enforcement of premarital physical examination) is sure to run afoul of the folkways (*e. g.* the sense of modesty). But there is yet another way to work for eugenics; and that is to expand, so far as possible, the limits set for it by ignorance; to invoke an actual fear of consequences. This is the province of the medical man, who is in the position to know the dangers and to some extent to enforce what he knows on a number of people. Laws forbidding the most frequent cases of counter-selection (*e. g.* marriage of idiots) can be passed by the educated minority, and enforced by the machinery of the state on the ignorant or careless. There can be no grand overturning of what has existed time out of mind, but there can be a skillful elimination of certain gross extremes of man-breeding.

Discussion on Fit Parents

Dr. W. H. Carmalt, New Haven: Referring to the statement made that criminality is increasing at a faster rate than population in America, said that criminality is but one branch, and the result of degeneracy. Children born of criminals become criminals by reason of their environment, and also by reason of the fact that they are born degenerates, and are unable to resist or appreciate the influences which bring about crime from their environment. It is for that reason that the number of degenerates should be limited; and the propagation of degenerates should be restricted.

Dr. F. A. Woods, Brookline, Mass., said that he considered the growth of interest in the study of heredity an encouraging sign. It is no longer necessary to be on the defensive in proving that there is anything in heredity. Ten years ago there was practically nothing on the subject except the writings of Francis Galton. To-day, we are in a position where we can say two things: first, that heredity is important; second, that it is important that alternative inheritance be considered in any study of the subject.

THE EDUCATION OF THE PARENTS OF THE FUTURE

The Responsibility of the Medical Profession for Public Education in Hygiene

Dr. John M. Tyler, professor of biology, Amherst College: The best means of decreasing infant mortality is to make sure of a race of healthy babies. Healthy children demand healthy parents. The next generation of parents is being made strong or weak in home and school to-day by an environment furnished by parents and teachers. These latter cannot be too well instructed in physiology, hygiene and biology. The possibilities, value, glory, and necessity of a vigorous and efficient life cannot be too strongly emphasized and clearly taught. Instruction of every kind has its place and value; but instruction through books and schools is inadequate. It can neither teach nor make allowance for individual differences in constitution and habit. It will probably fall on deaf ears or if heard and heeded will be misapplied. The most unfortunate child in the world is the one brought up according to theories framed from the study of books or from the lectures of the most learned and wise teachers. Parents and teachers need the sound advice of the practical and experienced physician far more than lectures, treatises or text-books. This we can safely follow. The physician should advise the parent as the lawyer advises his client or the banker the investor. No amount of study, however valuable, can replace such advice. Most of us will follow it for our children, if not for ourselves. Preventive medicine is the watchword of the day, and such instruction by our best physicians is one of the most important parts of the new work. It is being done to a certain extent already, it should be a far larger part of the work of the earnest and patriotic physician.

The Foundations of Prevention

DR. WILLIAM T. SEDGWICK, professor of biology, Massachusetts Institute of Technology: Discussion of infant mortality in the eighteenth century centered largely around infant damnation. In the nineteenth century it shifted to postmortem salvation, and in the twentieth is turning toward prevention. So long as one of the most powerful intellects of the eighteenth century—Jonathan Edwards—could affirm that infants, not of the elect, "are, in the sight of God, as young vipers," it was natural for more common folks to contemplate an excessive infant mortality not perhaps with satisfaction but with resignation. The watchword of a scientific age is prevention. The prevention of waste, the prevention of poverty, crime, pain, disease and premature death are now debated as never before. But scientific prevention requires for its foundations the completest possible knowledge of nature, including human nature, and of natural law; and above all more careful studies in biology, the science which lies at the basis of all knowledge of life and death. We must have also more and better training in all sorts of applied biology, such as hygiene and sanitation and eugenics, before we can expect to interfere wisely with natural processes or to control successfully the blind forces at work about and on and within us.

Discussion on Papers of Drs. Tyler and Sedgwick

PROF. C. F. HODGE, Worcester, Mass.: Adequate, definite vital instruction in practical biology should be given in the public schools, which should bring every boy and girl out of our grammar schools able to keep himself or herself healthy, and which should bring every young man and young woman out of our high schools active promoters of all good measures for civic health and enthusiastic members of the American Health League. It may seem a long way round, but the planting of a seed, and the rearing of the best possible plant from that seed by children in school would have an effect when those children became parents. So much for the training in the elementary schools. For the high schools, I advocate the establishment of strong courses in practical biology, taught in such a way that the influence of the teaching would react on the life in the homes, and on state and national morals. Finally, there should be such an education of public sentiment that it would no longer be practically impossible to persuade publishers to bring out a book in which the social diseases are discussed.

DR. WOODS HUTCHINSON, New York: The data collected by Professor Davenport are wonderfully illuminating, and the fact brought out most strongly in Professor Davenport's findings in the Mendelian law is that those unfavorable factors which are inherited are negative, or in the language of the Mendelian phrase, recessive; while those characters which make for health and vigor are positive and depend on a positive determinant, and not on the absence of a determinant. The whole tendency is in the direction of producing three-fourths vigorous, and one-fourth or less recessive, undesirable and inferior. This is carried out and supported by everything we know. There never were fewer insane or criminals than at present. There were never fewer criminals than at present. The apparent increase is due to the way in which crime is classified. There is no adequate foundation for the belief that crime or degeneracy are on the increase, and nothing to be afraid of in the decreasing birth-rate; there is an adequate balance between the death-rate and the birth-rate; as a matter of fact modern races are increasing more rapidly and with a better class of increment than ever before.

DR. T. G. WOOD, Columbia University, said that he began to teach the principles of eugenics to his classes about fifteen years ago and said that he frequently heard now from former pupils telling him of the practical benefit the instruction had proved to them and to their children.

DR. F. A. WOODS considered the application of the phrase "Mendelianism" to be fraught with danger at the present time in view of the fact that it was impossible to bring the most important characteristics within its range.

DR. WARD CRAMPTON, New York, said that emphasis was being placed on the teaching of hygiene, and that what was needed was the formation of hygienic habits.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Operation of Medical Legislation in the British Isles

Personal opinion on the subject of legislation regulating the practice of medicine is evidently as unsettled and conflicting in Great Britain as it is in the United States. A recent number of the *British Medical Journal* gives an account of a meeting held under the auspices of the Metropolitan Counties Branch in London for the purpose of hearing addresses from the three direct representatives for England and Wales on the General Medical Council.

THE GENERAL MEDICAL COUNCIL

This body consists of thirty-four members, twenty-four chosen by the royal colleges and universities (twelve from England, seven from Scotland, and five from Ireland), five members nominated by the king and five elected as direct representatives by the British Medical Association, three of whom must be registered medical practitioners residing in England and one each from Scotland and Ireland. The three direct representatives for England and Wales were present and addressed the meeting. Dr. Langley Browne reviewed the history of medical legislation in England.

Previous to 1858, each university, the royal colleges of physicians and surgeons, and the Apothecaries' Hall each laid down its own regulations for study and examination and granted a degree or license without any state supervision. In 1858 the General Council was created by act of parliament. At first it consisted of twenty-three members, seventeen appointed by different licensing bodies and universities and six by the crown. In the same year the Medical Register was established, in which no name could be entered except that of a person who holds a diploma or license from one of the licensing bodies. Various amendments were passed up to 1886, one of the most important being that of 1862, giving to the General Medical Council the sole right of publishing, printing and selling the British Pharmacopeia. The amendment of 1876 removed any disqualification in respect to sex in regard to registration.

In 1886, the present act was adopted, in which for the first time direct representation was granted. The five direct representatives are elected every five years and each registered practitioner is entitled to a vote on the candidates nominated in his division. Thus, in England and Wales, each registered practitioner can vote for three candidates, but in Scotland and Ireland he can vote for only one. At the last election, there were in England and Wales 25,168 electors, and in Scotland, 3,845. Dr. Browne advocated the division of England into equal electoral districts. It is interesting to note that out of the total number of ballots (24,650) sent out in England, 11,752, or 47.66 per cent. were returned correctly made out and within the proper time, 11,831, or 47.98 per cent. were not returned at all, while 1,503, or 12.61 per cent. were returned, but were thrown out on account of failure to comply with the regulations in filling out the ballots, so that in an election held for the purpose of allowing the medical profession to choose its own representatives, nearly half of the physicians did not take enough interest in the matter to vote at all, while the votes of less than one-half were counted.

PREPARING FOR BETTER THINGS

Discussing the recent work of the council, Dr. Browne called attention to the committee on unqualified practice, appointed in accordance with a recommendation of the council to inquire into the laws in other countries regulating unqualified practitioners. Through the Privy Council, the Foreign Office, and the Colonial Office, the laws of all civilized countries regulating medical practice have been secured, showing that in almost every country except Great Britain, unqualified practice (that is, the practice of medicine by unlicensed individuals) is not permitted.

Dr. Latimer, another direct representative on the council, discussed the suppression of quackery. He said regarding the British medical practice act: "The law is so loose that, provided a man does not use medical titles, he can practice unhindered. He is simply restrained from giving evidence as a medical man in courts of law and from obtaining and holding certain public appointments." The medical practice acts in some of the British colonies and dependencies have gone much farther than the British act in the restriction of unqualified practice. For instance, the law in the British Central Africa Protectorate provides that "any person who shall wilfully and falsely pretend to be a duly qualified medical practitioner or who shall use any name or title implying or calculated to lead people to infer that he is duly registered, or any person who shall practice or do anything or perform any such acts as specially belong to the profession of the medical practitioner, without being registered, shall be fined £100 for each offense." Dr. Latimer quoted Sir Donald MacAlister, who stated in an address delivered at Manchester University in 1906, that the act of 1858 was passed, not for the protection of medical men but as a guide to the public to enable them to distinguish between qualified and unqualified practitioners.

He also pointed out that the British government had recognized the necessity of a restrictive rather than a definitive principle in medical legislation in the passage of the midwives' act, which not only required registration of midwives, but forbade the practice of midwifery by unregistered persons. He considered that it was the duty of the medical profession to collect a mass of evidence respecting the evils wrought by quacks and to present this to Parliament to show that as much evil was wrought by quacks as resulted from dirty and ignorant midwives.

OPTOMETRY IN GREAT BRITAIN

Evidently the British medical profession has had to contend against a movement similar to the so-called "optometry" movement in this country. Dr. Latimer states that in 1906 the British Optical Association, a body of tradesmen engaged in selling spectacles and testing sight, applied for a charter in which they endeavored to imitate the medical act by the creation of a central board, the restriction of glass-fitting and eye-testing to those registered, etc. The application for a charter having been made to the Privy Council, this body referred the petition to the General Medical Council, which adopted a resolution stating that in its opinion it was dangerous in the public interest to confer the powers and privileges contemplated therein on persons other than those duly qualified in medicine and surgery. Accordingly, the request for a charter was not granted.

Dr. Latimer also referred to the application for a charter by a body styling itself "The National Association of Medical Herbalists," the majority of which, he says, were engaged in carrying on quack businesses. This application for a charter was also refused.

A medical act, said Dr. Latimer, does not authorize any body to impose on any candidate offering himself for examination an obligation to adopt or refrain from adopting the practice of any particular theory of medicine or surgery as a condition of admitting him to examination or of granting him a certificate. Thus, a physician might be a homeopathist, but he must first of all have been properly educated and entered on the medical register. This being done, he is free to practice in accordance with any particular theory which he wishes to follow.

WEAK POINTS IN THE BRITISH MEDICAL ACT

The consensus of opinion seemed to be that the British medical act failed in dealing with quacks and incompetent persons. The agitation on this point now being carried on as well as the report of the committee on unqualified practice may lead to future amendments enlarging the powers of the committee so as to make it possible for it to deal with this dangerous class. The composition of the council itself, consisting of representatives of universities and medical organizations, representatives appointed by the crown and representatives elected by the registered physicians themselves, certainly offers many advantages that are worthy of careful consideration.

Dominion Registration in Canada

For many years a sentiment has been growing in favor of a system of regulating medical practice in Canada which would cover the entire Dominion rather than each province. At a meeting recently held in Banff at which representatives of the councils of four western provinces were present this question was discussed and, according to the *Canadian Practitioner and Review*, considerable progress was made. Resolutions were adopted by the representatives of the four provinces present in favor of a uniform law for the regulation of the practice of medicine.

Considerable discussion on this question has also taken place in Ontario although this province was not represented at the conference. The discussion centers around the so-called Roddick bill which provides for dominion regulation as soon as five or more provinces agree to accept it and pass the necessary legislation to make it effective. The problem before the Canadian profession is much the same as that confronting physicians in the United States, though on a smaller scale. Each province in Canada has its own examining and licensing body, which establishes its own standards and which may or may not recognize those of other provinces. The advantages of a single act of the dominion parliament establishing a uniform standard for the entire Dominion of Canada and substituting a central body for the numerous provincial boards is obvious. In view of the evident advantages of a uniform system of regulation, it is to be hoped that the medical profession of our neighboring dominion will be able to secure such legislation.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Second Weekly Meeting

DISEASES OF THE STOMACH

ACUTE GASTRITIS: (a) Acute gastric catarrh; etiology and symptoms. (b) Acute suppurative gastritis; diagnosis. (c) Toxic gastritis; diagnosis and treatment.

CHRONIC GASTRITIS: Pathology, (a) simple, (b) sclerotic gastritis; changes in mucosa, glands, muscularis, blood vessels. Clinical forms (Ewald). (a) simple, (b) mucous, (c) atrophic gastritis; diagnosis of each. Medicinal treatment. Indications for use of hydrochloric acid, ferments, bitter tonics.

DILATATION OF STOMACH

Acute dilatation; etiology, symptoms. Chronic dilatation due to (a) pyloric obstruction, from ulcers, stenosis, adhesions, etc.; (b) gastric atony, from chronic catarrh, over-distention, chronic diseases, etc. Diagnosis, history, symptoms, physical examination.

GASTRIC AND DUODENAL ULCER: Etiology, incidence, age, sex, trauma, diet, associated diseases. Proportion of gastric and duodenal ulcers. Diagnosis, pain, vomiting, hemorrhage, tenderness, gastric contents. Differentiation of gastric and duodenal ulcers.

CANCER OF STOMACH

PATHOLOGY: Situation, forms, adenocarcinoma, medullary, scirrhus and colloid. Changes in stomach, metastases. Symptoms. Gastric symptoms, anorexia, nausea and vomiting, hemorrhage, pain, gastric contents. Loss of strength and flesh, anemia, constipation, edema, tumor.

NEUROSES OF THE STOMACH (RIEGEL)

MOTOR NEUROSES: 1. Hyperkinesis. 2. Peristaltic unrest. 3. Nervous vomiting. 4. Nervous eructations. 5. Rumination. 6. Spasm of the cardia. 7. Pyloric spasm. 8. Atony of stomach.

SECRETORY NEUROSES: 1. Hyperacidity. 2. Supersecretion, intermittent and continuous. 3. Subacidity or anacidity.

SENSORY NEUROSES: 1. Hyperesthesia. 2. Gastralgia. 3. Bulimia. 4. Akoria. 5. Anorexia nervosa.

Medicolegal

Requirements in Proceedings for the Adjudication of Insanity —Admissions of Insanity

The Supreme Court of Michigan says, In re Phillips (122 N. W. R. 554), that proceedings taken for an adjudication of insanity against an individual should require the strictest compliance with all the statutory requirements provided. The determination affects the rights of the individual to the enjoyment of life, liberty and property. Courts will ever protect the rights of the individual who is so unfortunate as to be called on to make a showing to maintain his or her mental integrity.

An admission of insanity can never fix the status of unsound mind in the person making the admission. The law prescribes the only way a determination of insanity may be declared. It is doubtful whether in any case, where no rights of innocent third parties intervene, any conduct of any person will prevent him from questioning in any proceeding the regularity and determination of his insanity.

All persons are presumed to be sane, and in every proceeding the burden of proving insanity rests on the one challenging the sanity of the individual. It is always a question to be tried out in the proceeding then pending where it is raised.

The proceeding leading to an adjudication of insanity is not an adversary proceeding. It is a proceeding in the interest of the public to protect deficient citizens. It is therefore not a proceeding where any act or admission of the party could prejudice an adverse party.

Practicing Medicine Without a License

The Supreme Court of Indiana says, on the appeal of Melville vs. State (89 N. E. R., 490), where it affirms a conviction of practicing medicine without a license, that the accused argued that a diploma held by him from a school of osteopathy at the time the law went into effect entitled him to a license to practice medicine, and having applied to the Board of Medical Examination for a certificate, and exhibited and filed with the board his diploma and paid the legal fees, and done, as he averred, all that he was required by the law to do, and his license being wrongfully withheld, he had a right to practice medicine. But in this contention he fell into error.

The mere delivery of the diploma to the board, and the payment to it of $10 as a fee, of themselves amounted to nothing. Calling the money paid a license fee did not make it a license fee. The Indiana statute requires the payment of $10 to the board as an examination fee, to determine whether the candidate for license is a fit person to receive it. The payment of the $10 secures to the candidate no privilege or advantage beyond the right to an examination by the board as to fitness to exercise a license. And because the contrary was not alleged, the court infers that the accused never had an examination by the state board, or, if he had one, he failed to prove himself qualified and entitled to a certificate; and if he had in fact received a certificate, that he never presented it to the county clerk, and requested the issuance of a license on it. If either of these assumed facts existed, he was not entitled to a license.

Again: According to his plea, he had no qualification, or right, to a license to practice medicine beyond that conferred by his diploma from a Chicago school of osteopathy. If the court granted that the school that issued to him the diploma was a reputable and an approved school of osteopathy, that would not strengthen the answer. His failure to affirm that he was practicing osteopathy only was equivalent to an admission that he was practicing medicine generally, and the very most he could claim the right to do was to practice osteopathy.

Nor was there error in denying to the accused the right to read in evidence, as a license to practice medicine, the receipt, given by the secretary of the board for "ten dollars in payment of legal fee on diploma for certificate." The receipt was not a license, and furnished the accused no excuse for the violation of a specific requirement of the law. Even if he had shown that he was entitled, and that a license was arbitrarily withheld, it would have afforded him no sufficient justification to practice medicine. If a license was wrongfully withheld, his remedy was to proceed by appeal, or some other appropriate action to obtain it.

What Constitutes Serious Illness and "Spitting or Coughing of Blood"

The Supreme Court of Oklahoma says, in Eminent Household of Columbian Woodmen vs. Prater (103 Pac. R. 558) that not every illness is serious. An illness may be alarming at the time, or thought to be serious by the one afflicted, and yet not be serious in the sense of that term as used in insurance contracts. An illness that is temporary in its duration, and entirely passes away, and is not attended, nor likely to be attended, by a permanent or material impairment of the health or constitution, is not a serious illness. It is not sufficient that the illness was thought serious at the time it occurred, or that it might have resulted in permanently impairing the health. A cold may be, and sometimes is, followed by pneumonia, pleurisy, abscess of the lungs and consumption, but to hold that because a cold may be attended or followed by such consequences it is a serious illness, and that a failure to mention such in response to an inquiry in an application for insurance as to the nature and character of any serious illness the applicant has suffered, would result in invalidating almost all contracts of insurance, the covenants of which are based on the statements in the application as warranties; for, if a careful investigation should be made in the lives of persons insured, in almost every life there would be found some incident of illness of such ordinary occurrence and insignificance in its effect, yet of possible seriousness, which the applicant, without careful scrutiny and accurate recollections of his past life, has overlooked to mention. As used in an application for a life-insurance policy, the term "serious illness" means such an illness as permanently or materially impairs, or is likely permanently or materially to impair, the health of the applicant.

The phrase "spitting or coughing of blood," as used in a question propounded by a medical examiner to an applicant for a life-insurance policy, as to whether she had ever had "spitting or coughing of blood," means the disorder so called, whether the blood comes from the lungs or from the stomach. Whether this language would include any spitting of blood, however small in quantity and unimportant, such as might come from a wound of the gums, or the removal of a tooth, or the biting of the tongue, it was unnecessary for the court to determine in this case, because that question was not involved under the facts of the case, but it would include the disorder by that name called, whether the blood came from the stomach or from the lungs, when it had assumed such proportions as to be a disease.

Validity of Contracts Restricting Practice of Medicine

The Supreme Court of Oklahoma holds, in Threlkeld vs. Steward (103 Pac. R. 630), that a contract restraining the practice of medicine and surgery in a particular locality, within a reasonable area, is valid. The practice of medicine and surgery within the prescribed limit, contrary to the provisions of such a contract, may be restrained by injunction. Courts will not, as a rule, inquire into the adequacy of the consideration of such a contract.

There is no discord in the authorities, the court says, that, where the restraint is no more extensive as to area than the protection of the party with whom the contract is made reasonably requires, the public not being likely to be injured by such an agreement, every other person being at liberty to practice within such limits, such contract is reasonable and valid, unless otherwise vitiated. While courts will scrutinize to determine whether or not the restraint be unreasonable, yet, as a rule, they will leave it to the parties themselves to make their terms in regard to the consideration thereof.

The rule is supported by both reason and authority that an agreement for a valuable consideration not to practice medicine within a reasonable distance of a designated place is not unreasonable, and the exercise of the profession within such prescribed limit may be restrained by injunction.

In the absence of fraud, accident or mistake, the terms of a written contract are not permitted to be varied by oral testimony; but evidence showing the relation of the parties and their profession or business, when not in conflict with the express terms or language of the contract, is admissible.

Identification of Subject of Autopsy by Photograph

The Supreme Court of Oregon says, in the homicide case of State vs. Finch (103 Pac. R. 505), that the physician who performed the autopsy was not personally acquainted with the deceased, and only knew that he had performed an autopsy on the body of some person unknown to him. A photograph of the deceased, proved to be a correct likeness, was shown to him, and he then testified that the person on whom he performed the autopsy was the same person represented in the photograph. For the same purpose of identification the photograph was also shown to other witnesses. It was a picture showing the deceased in health and strength, and was not in any way calculated to excite the passions or sympathy of the jury. In the case of State vs. Miller, 43 Or. 325, a photograph showing a number of gunshot wounds on the body of the deceased, and presenting what the court called "a grewsome spectacle," was introduced without any apparent necessity, and without proof of its correctness. The court held that under the circumstances its introduction tended unnecessarily to inflame the jury against the defendant, and that its admission was error. But in this case the purpose for which the picture was introduced was proper, and there was nothing in any way calculated to prejudice the defendant's case in exhibiting it to the jury. It was not error to allow the photograph to be introduced in evidence.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

December 18

1 Cerebrospinal Meningitis; Clinical Observations and Serum Treatment. L. Fischer, New York.
2 *The Wassermann Reaction (Noguchi Modification) in Pellagra. H. Fox, New York.
3 *Etiology of Pellagra. J. H. Taylor, Columbia, S. C.
4 Amebas in the Stools of Pellagrins. W. Allen, Charlotte, N. C.
5 What can we do to Prevent, Arrest, and Cure Generalized Fibrosis? F. S. Mason, New York.
6 Case of Malignant Precocious Syphilis. H. B. Epstein, Newark, N. J.
7 Two Cases of Modern "Point Tying." W. H. Luckett, New York.
8 Open Method of Treatment in Simple Fractures. M. F. Porter, Fort Wayne, Ind.
9 Palliative Treatment for External Hemorrhoids. G. E. Barnes, Herkimer, N. Y.

2, 3. Abstracted in THE JOURNAL, Nov. 13, 1909, p. 1659.

Boston Medical and Surgical Journal

December 16

10 Cases of Renal Suppurations in Typhoid. C. F. Withington, Boston.
11 *Bacillus of Acne. H. F. Hartwell, and E. C. Streeter, Boston.
12 *Treatment of *Bacillus Aërogenes Capsulatus* Infections by Proximal Injections of Hydrogen Peroxid. F. H. Lahey, Boston.
13 The Gailloux Murder. A Case Solely of Circumstantial Evidence, with Conviction of the Murderer. W. F. Whitney, Boston.
14 Diagnosis of Ulcer of the Duodenum. E. A. Codman, Boston.

11. **Bacillus of Acne.**—In three cases of acne which Hartwell and Streeter studied, a bacillus identical with the bacillus of acne of Gilchrist and other observers was obtained. From the ease with which it could be obtained from these two cases when grown anaerobically, the authors think that it can probably be cultivated from all cases of acne.

12. **Proximal Injections of Hydrogen Peroxid.**—Experiments made by Lahey have convinced him that the injection of hydrogen peroxid into the human for the purpose of stopping the extension of a *Bacillus aerogenes capsulatus* lesion would never be justified, owing to the danger to life connected with this form of treatment.

Medical Record, New York

December 11

15 Present Status of the Tonsil Operation. G. L. Richards, Fall River, Mass.
16 The Last Epidemic of Yellow Fever in Cuba. P. C. Fauntleroy, U. S. Army.
17 Acute Gonorrheal Prostatitis. F. C. Valentine, and T. M. Townsend, New York.
18 Treatment of Diseases in Senility. I. L. Nascher, New York.
19 Evidence Controverting Rosenberger's Tuberculous Bacteriemia Hypothesis. B. Stow, New York.
20 *New Method of Applying Lactic Acid Bacilli in Treatment of Suppurating Wounds. W. B. McLaughlin, New York.
21 *Total Ophthalmoplegia. F. M. Fernandez, Havana, Cuba.

December 18

22 Treatment of Stammering, with Suggestions as to Modern Methods. G. Hudson-Makuen, Philadelphia.
23 *Technic of Amputations with Special Reference to Osteoplastic Methods. A. V. Moschcowitz, New York.
24 Physical Decay of Northern Europeans in our Northwest. C. E. Woodruff, Manila, P. I.
25 *Treatment of Pulmonary Tuberculosis Based on the Assumption that the Dietetic Cause of the Disease is Lime Starvation. J. F. Russell, New York.
26 *The Incandescent and the Arc Light in Medicine. A. D. Rockwell, New York.
27 General Death-Rate from Malignant Growths in the Principal American Cities. R. F. Edwards, Newark, N. J.
28 Diseases of the Eye in Pellagra. A. B. Clarke, Plantersville, S. C.

20. **Lactic Acid Bacilli in Treatment of Suppurative Wounds.**—McLaughlin makes use of a powder produced from sterilized and dried solids of skim milk, inoculated with a culture of Bulgarian bacilli. This powder is used as a dusting powder in carcinoma, chancroid, purulent ulcers and septic wounds. He claims to have had good results.

21. **Total Ophthalmoplegia.**—Fernandez describes a case of total ophthalmoplegia due to syphilis and of nuclear origin. The eye could not be moved in any direction and there was ptosis and loss of sight, vision being limited to perception of light.

23. **Technic of Amputations.**—Moschcowitz thinks that the construction of a good stump is best accomplished by osteoplastic methods because the one important factor is that the end of the stump should be covered with normal bones and normal periosteum. This is accomplished by osteoplastic flaps.

25. A preliminary article on this subject appeared in *The Medical Record*, Nov. 27, 1909, and was abstracted in THE JOURNAL, Dec. 11, 1909, p. 2033.

26. **Incandescent and Arc Light in Medicine.**—Rockwell claims that the incandescent light of 500 candle power is very valuable for the relief of pain, especially of neuritis. In the incandescent light the glass globe intercepts the chemical rays, while the arc light gives all the effects of the solar rays. The *incandescent light is of special value in the treatment of* superficial skin lesions which is due to light and heat combined with chemical rays.

Lancet-Clinic, Cincinnati

December 4

29 Infant Feeding in Country Practice. C. W. Carter, Clinton, Ill.
30 Scarlet Fever—Pathology, Treatment and After-Care. P. T. Kilgour, College Hill, Ohio.
31 The Hypodermic Sea-Water Treatment of Disease. J. W. Carpenter, Cincinnati.

Medical Fortnightly, St. Louis

November 25

32 Touring the Lands where Medical Science Evolved. R. G. Eccles, St. Louis.
33 Prognostic Value of the Cutaneous Test in Tuberculosis. A. E. Taussig, St. Louis.

Virginia Medical Semi-Monthly, Richmond

November 12

34 Diseases of the Ear Complicating Measles and Scarlatina. W. A. Wells, Washington, D. C.
35 Two Cases of Pellagra. R. Parker, Williamsburg.
36 Bacteria in the Circulating Blood; Description of Technic for Demonstration by Staining Methods. M. P. Burnham, Harrisonburg.
37 Clubfoot. P. Green, Wytheville.

November 26

38 *Burn which Involved One-half the Body Area; Recovery. A. H. Barkley, Lexington, Ky.
39 Pellagra. J. S. deJarnette, Staunton.
40 The Heart in Acute Infectious Diseases. A. G. Brown, Richmond.
41 Successful Treatment of Parasyphilis. T. A. Williams, Washington, D. C.
42 Cursory Review of Pulmonary Tuberculosis. B. C. Keister, Roanoke.

38. Abstracted in THE JOURNAL, Nov. 20, 1909, p. 1769.

American Journal of Medical Sciences, Philadelphia

December

43 *The Emmanuel Movement. J. K. Mitchell, Philadelphia.
44 *Treatment of Chronic Bronchitis. B. Robinson, New York.
45 *Anatomic Study of Pericarditis. H. Brooks and L. Lippencott, New York.
46 *Normal Auscultatory Differences Between the Sides of the Chest. R. C. Cabot, Boston.
47 Practical Value of Spinal Percussion in Diseases of the Mediastinum. J. C. Da Costa, Philadelphia.
48 Resemblances Between the Clinical Effects of Pneumococcus and Meningococcus Infections. R. B. Preble, Chicago.
49 Diagnosis and Surgical Treatment of Acute Pancreatitis. J. B. Deaver, Philadelphia.
50 *Pathologic Relationships of Gastric Ulcer and Gastric Carcinoma. L. B. Wilson and W. C. MacCarty, Rochester, Minn.
51 Etiology and Pathology of Inguinal Hernia. W. L. Rodman, and C. W. Bonney, Philadelphia.
52 Action of Short Rotators on the Normal Abduction of the Arm: Their Action on Subacromial Bursitis and Allied Conditions. J. B. Stevens, Boston.
53 *Spastic Paraplegia Dating from Childhood (Little's Disease). Little or No Demonstrable Lesions in the Pyramidal Tracts. J. H. Rhein, Philadelphia.

43. **The Emmanuel Movement.**—In criticising the Emmanuel movement, Mitchell finds fault not with the use of proper mental means of cure, but with their improper, unwise, exaggerated and unscientific application by persons not fitted to judge the needs and limitations of the patients treated. Mental and moral therapy, he says, is as good and valuable a remedy as it always was, and although it will suffer discredit, as other good remedies have done, from ignorant enthusiasm, the new attention which the discussion has brought it will in the end do good. He says that the use of hypnotism in any form, manner, or degree is a matter which should be under legal control. It is a dangerous remedy in the hands of the best qualified medical man, and utterly to be condemned when used by any one not a qualified and responsible physician.

44. **Treatment of Chronic Bronchitis.**—In chronic bronchitis, hygienic measures are of primary importance; good ventilation, plenty of air and sunshine are essential; so are good food and rest. Clothing suitable to the season, and well selected, is necessary. Apparel too heavy, which overheats in the house and causes perspiration, only brings on fresh colds and aggravates the chronic disease. Food should be simple, well prepared, and nutritious; but heavy meals, especially at dinner, must be interdicted. Strictest moderation in sweets and alcohol should be enjoined; and tobacco, as a rule, hurts notably, except in mild quality and very small quantity in the evening. As to medication: internally, the iodids are the most useful drugs when properly used. When there is dyspnea, even slight, or nervous irritability shown in any way, Robinson combines the iodid with Hoffman's anodyne. Hydriodic acid may be alternated advantageously with terpene hydrate in fairly large doses. Invariably counter irritation to the chest should be insisted on, and kept up for many days, or weeks, with occasional intermissions when the skin becomes tender. Nothing, says Robinson, equals the compound tincture of iodin for its resolutive qualities, and the derivative effect toward the skin is all that is desirable.

Internally, Robinson is opposed to the use of sedatives or anodynes, unless imperatively required. The least objectionable are the combined bromids, henbane, or codein. A mercurial, followed by Rochelle or Epsom salts, is useful once a week or oftener, and diminishes cough and expectoration for a time in a pronounced degree. Vapor inhalations, especially of creosote, are very valuable when properly used, and if persisted in are more curative than any other one thing, unless it be change of climate and, at times, habits and occupation. The inhalations should be used with the perforated zinc inhaler. Internally, creosote may also be given with the happiest effects, in small repeated doses, and, combined with the best whisky and glycerin, will rarely disagree with the patient.

These patients cannot, should not, be housed. If so, they soon become worse, and their bronchial mucous membrane will not bear the slightest change without increased cough and expectoration. If a change of climate may be indulged in, one should go, preferably, to the sand hills of Georgia in winter, and in summer to the Adirondacks, at a moderate elevation. If permanent banishment seems desirable, California, not too near the coast, Robinson believes, is the one place of best resort.

45. **Pericarditis.**—According to Brooks and Lippencott, pericarditis is a lesion secondary in nature, rarely or never primary. The complication, for such it must be considered, is in most cases not in itself serious, except when of the suppurative variety, and in all instances it is more noteworthy as indicating the general condition in which it arises than on account of its own importance. It is, therefore, of little relative clinical importance, except as a diagnostic index, and in suppurative cases. True myocarditis is infrequently associated with pericarditis, but myocardial degeneration is commonly found and is not due to the pericarditis, although generally caused by the same condition as the pericardial inflammation. Death rarely results in pericarditis from this lesion. Independent myocardial degeneration leading to dilatation of the heart, and especially fatty degeneration of the myocardium, is a predisposing or determining factor toward pericarditis. Overaction of the heart may induce pericardial inflammation. Serofibrinous pericarditis is in most instances an evidence of generalized bacteriemia. Chronic adhesive pericarditis is a lesion of great frequency, often impossible of diagnosis, and in itself of very little clinical significance or importance. Serious symptoms arise from adhesive pericarditis only when the myocardium itself is seriously diseased, either concomitantly or quite independently. The signs usually cited as characteristic of pericardial synechia develop only when mediastinal inflammation or adhesions of marked degree are present in addition to the pericarditis.

46. **Normal Auscultatory Differences.**—Attention is called by Cabot to what he believes to be a fairly common difference between the right and the left base posteriorly. In a series of 250 healthy persons recently examined with reference to this point, he found this difference present in 67 per cent. In these cases the breathing at the left base was notably louder and harsher than that at the right. In the majority of these it had also the quality described by the Germans as "rough." Cabot has nothing of importance to say as to the cause of this difference. Obviously, the only importance of the sign is that in case it is confirmed and established by the observations of other physicians it will slightly complicate our process of reasoning in regard to the soundness or unsoundness of the lungs as based on physical examination.

Cabot recently examined fifty normal chests with the subject in the lateral recumbent position. Briefly stated, the differences are as follows: (a) On palpation, increased tactile fremitus on the lower side; (b) on percussion, a combination of dulness with a tympanic quality on the lower side; (c) on auscultation, an increase in the intensity of the spoken and of the whispered voice, with a slight prolongation of expiration and a raising in its pitch. Summarily stated, these signs amount to the indications of a slight degree of condensation of the lung, such as we see in the upper part of a chest when a pleural effusion is present below.

50. **Gastric Ulcer and Gastric Carcinoma.**—As the pathologist examines stomach specimens from the surgical clinic he constantly observes the various steps in the following sequence: 1. Chronic ulcers from the centers of which the mucosa has disappeared leaving a scar tissue base. 2. In the overhanging borders of the ulcers the mucosa is proliferating. 3. Deep in the borders many groups of epithelial cells have been nipped off by scar tissue and are exhibiting all stages of aberrant proliferation with infiltration of the surrounding tissue. 4. Metastases are forming in the lymphatics of the stomach wall and adnexa. Wilson and MacCarty say that in a small percentage of patients operated on the condition is too far advanced to show these steps, and a very small percentage—probably not over 2 per cent.—give evidence of rapid aberrant epithelial proliferation and infiltration without any sign of previous ulcer. Adopting Adami's classification one may therefore correctly designate most gastric carcinomas as "blastomas originating from unipotential cells of postnatal displacement," although it is probable that a very small number are "blastomas originating from unipotential cells that assume neoplastic characters without displacement and rapidly assume malignancy."

53. **Spastic Paraplegia.**—A man, aged 71, presented spastic paraplegia dating from early childhood. A study of the brain

and spinal cord revealed nothing of importance, excepting a fineness of the fibers in the crossed pyramidal tracts. In Rhein's opinion this case antedated the age of five years (as the patient stated), as his intelligence was below normal, and it could not be expected that at the age of 64 (when he was admitted) an accurate history of his early infancy could be obtained. The result of the anatomic study makes it possible that this case was one of Little's disease, although without definite history of the onset, this claim cannot be made definitely. Rhein considers it extraordinary, that an individual could live to the age of 71 years, suffering for certainly the greater part of his life from spastic paraplegia, without its being possible to demonstrate more pathologic change in the nervous system than the slight and perhaps indefinite one mentioned. It seems to confirm the theory that the fine caliber of nerve cells offered resistance to the transmission of motor impulses, which, for their perfect conduction, require well-formed and large nerve fibers.

Montreal Medical Journal

November

54 Diagnosis of Surgical Diseases of the Kidneys. R. P. Campbell, Montreal.
55 Wassermann Reaction in Syphilis. W. Hutchinson, Montreal.
56 Anatomic Aspect of Fractures. J. A. Nutter, Montreal.
57 Museum Methods Observed in the Principal Pathologic Museums of London. J. Kaufmann, Montreal.
58 Case of Renal Calculus. J. M. Elder, Montreal.
59 Complicating Micro-organisms and their Relation to Hemoptysis in Pulmonary Tuberculosis. A. H. Caulfield, and J. C. Beatty, Gravenhurst, Canada.

Old Dominion Journal of Medicine and Surgery, Richmond

November

60 Use and Abuse of Rest in Therapeutics. R. C. Cabot, Boston.
61 Four Years in Tuberculosis Dispensary Work. B. M. Randolph, Washington, D. C.
62 Ocular Symptoms of Diseases of the Accessory Sinuses. W. C. Posey, Philadelphia.
63 Cases of Pellagra. H. R. Slack, and W. R. McCall, La Grange, Ga.
64 *Pellagra in Virginia. D. Vanderhoof, Richmond.

64. Abstracted in The Journal, Oct. 24, 1909, p. 1421.

St. Louis Medical Review

November

65 *Advantage of Combined Intraperitoneal and Extraperitoneal Ureterolithotomy for Stone in the Lower Ureter. E. Jonas, St. Louis.
66 Recollections of a London Medical School Thirty Years Ago. A. B. Clarke, N. Devon, Eng.
67 Killing Our Own Business. P. C. Palmer, Kansas City, Mo.

65. Abstracted in The Journal, Oct. 2, 1909, p. 1121.

Journal Arkansas Medical Society, Little Rock

November

68 *Postoperative Ileus, Gastroduodenal in Type. A. Watkins, Little Rock.
69 Tetanus. G. A. Warren, Black Rock.
70 Office Treatment of the More Common Diseases of the Rectum. C. P. Meriwether, Little Rock.
71 Control Work in Bovine Tuberculosis. W. Lenton, Little Rock.

68. **Postoperative Ileus.**—Results, says Watkins, depend on an early diagnosis, with prompt treatment. All food and drink must be withdrawn from the stomach. The stomach tube is to be used early and often, the foot of the bed raised and the patient turned on the side, preferably the left, or on the abdomen; this maneuver should be preceded by gastric lavage. Gentle massage of the abdomen from below upward is beneficial, as are turpentine stupes. Rectal saline injections and nutrient enemata are strongly indicated. Eserin salicylate, gr. 1/50 to 1/100, hypodermically, offers the strongest medicinal stimulant to peristalsis. When a surgical patient continues to vomit beyond the usual postanesthetic period, inspect the abdomen immediately, removing whatever dressings are necessary. The motif of successful treatment is frequent antiseptic gavage, but the keynote is early diagnosis and prompt measures for relief.

Wisconsin Medical Journal, Milwaukee

November

72 Clinical Importance of the Sacroiliac Joint. E. Evans, La Crosse.
73 *Experimental Study of Cancer. C. H. Bunting, Madison.
74 *An Aspect of Cerebral Surgery, Based on the Therapeutic Significance of Acute and Chronic Intracranial Hypertension. J. L. Yates, Milwaukee.
75 *Recent Epidemic of Spinal Paralysis in Wisconsin. J. Manning, Eau Claire.
76 Pathology of Spinal Paralysis. D. Hopkinson, Milwaukee.
77 Treatment of Syphilis. O. H. Foerster, Milwaukee.

73, 74, 75. Abstracted in The Journal, Aug. 21, 1909, pp. 647, 648.

American Journal of Urology, New York

November

78 *Advantage of the Combined Intraperitoneal and Extraperitoneal Ureterolithotomy for Stones in the Lower Ureter. E. Jonas, St. Louis.
80 Relative Advantages of Catheterization and Operation in Treatment of Prostatic Enlargement. H. T. Herring, London, Eng.

78. Abstracted in The Journal, Oct. 2, 1909, p. 1121; also published in *St. Louis Medical Review*, November, 1909.

The Laryngoscope, St. Louis

November

81 Oculo-Orbital, Intracranial and Cerebral Complications of Diseases of the Nasal Accessory Sinuses. A. Onodi, Budapest.
82 *Present Status of Surgical Treatment of Chronic Suppurative Disease of the Nasal and of the Aural Cellular Spaces. J. N. Roik, Baltimore.
83 Facial Paralysis Due to Aural Lesions. D. J. G. Wishart, Toronto.
84 *Complicated Case of Acute Mastoiditis, of Unusually Rapid Progress Resulting Fatally; Autopsy. A. S. Kaufman, Philadelphia.
85 An Instrument Which Facilitates the Removal of the External Nasal Wall. C. W. Bishop, Minneapolis, Minn.
86 Primary Tuberculosis of the Fauces, Posterior Pharynx and Palatal and Lingual Tonsils, Cured by Tuberculin Injection. J. R. Winslow, Baltimore.
87 The Pars Sigmoidalis Sinus Lateralis and Its Relation to Processus Mastoideus Ossis Temporalis. H. J. H. Hoove, Des Moines, Iowa.
88 Direct Laryngoscopy in Diagnosis and Treatment of Papillomata of the Larynx. R. H. Johnston, Baltimore.
89 Chronic Antral Suppuration. W. R. Butt, Philadelphia.
90 Treatment of Cicatricial Stenosis of the Larynx by the Methods of O'Dwyer and Rogers. D. B. Delavan, New York.
91 Present Status of Oral Surgery. H. G. Langworthy, Dubuque, Iowa.

82. **Diseases of the Nasal Accessory Sinuses.**—Onodi says that there can be no doubt of the causal relation between diseases of the posterior accessory cavities and disturbances of vision, yet we must emphasize the fact that both conditions may occur simultaneously, accidentally but independently. Ophthalmologists have cited numerous causes for neuritis and atrophy of the optic nerve. Neuritis retrobulbaris may also recover spontaneously after simple treatment or without therapeutic measures. There are cases in which the unfavorable progress of the optic neuritis was unchecked by operative measures. Finally there are cases of tumors of the nasal cavity, empyema of the posterior accessory cavities, and extensive bone destruction in which vision remains undisturbed. No disturbances of vision may occur with extensive pathologic processes, while, on the other hand, slight disturbances in the nasal cavity may cause disturbances of vision. Onodi emphasizes the fact that disturbances of vision or blindness arising from other causes may be independent of empyema of the posterior accessory sinuses. The simultaneous but accidental affection of these areas may lead to error, and may be detrimental to a clear understanding and development of this interesting question.

84. **Acute Mastoiditis.**—The case reported by Kaufman was of interest on account of the great rapidity with which not only the surrounding structures were involved, but also organs in other parts of the body, by metastasis. The points of particular interest in the postmortem examination are as follows: On the superior surface of the left ventricle of the heart there was a beginning milk spot. The left lung showed crepitus throughout; on the lower lobe, along the middle of the fissure, was a hard, indurated area surrounded by hemorrhagic infiltration. The center of this mass was necrotic. There was an area similar to this on the base of the upper lobe. The right lung showed scattered pyemic emboli and the peribronchial lymph nodes were enlarged. The spleen was enlarged, dark red in color, and showed hyperplasia. The cortices of the kidneys were bulging. The liver was large and mottled and the under surface showed a small abscess 5 cm. in diameter. On section, the liver showed fatty infiltration. Peyer's patches were swollen. The meninges were slightly edematous, and there was slight injection of the meningeal

vessels. The right temporosphenoidal lobe, posteriorly and inferiorly, contained a circumscribed ovoidal cavity which extended into the underlying brain substance for a distance of 2 cm. The bottom of the cavity was composed of grayish-pink, necrotic, granular substance. The margin of the cavity was composed of similar tissue. The remaining brain substance contained nothing unusual. The lateral sinus of the right side was obliterated at a point where it was exposed through the mastoid process. This opening perforated the petrous portion of the temporal bone, making an opening 8 cm. in diameter and connecting with the cavity described in the brain. The sinus as it passed through the base of the skull contained a purulent grayish-white substance.

Alabama Medical Journal, Birmingham

November

92 Ophthalmic Memoranda. S. L. Ledbetter, Birmingham.
93 Accessory Sinus Disease. E. W. Rucker, Birmingham.
94 The Anesthetic Index. J. R. Dawson, Birmingham.
95 One Hundred and Thirty-Two Deliveries at the Salvation Army Rescue Home. R. H. Coston, Birmingham.
96 Etiology and Pathology of Pancreatic Disease. H. E. Mitchell, Birmingham.
97 Indications for Operation in Gall-Stone Disease. E. M. Robinson, Birmingham.

Iowa Medical Journal, Des Moines

November

98 Therapeutics a *Sine Qua Non* in Surgery. E. E. Munger, Spencer.
99 *The Old and the New Medicine. G. E. Crawford, Cedar Rapids.
100 Observations Concerning Tuberculin. W. H. Bickley, Waterloo.
101 Vaccine Therapy in General Practice. H. M. Bruce, Cedar Falls.

99. Abstracted in The Journal, July 10, 1909, p. 139.

Southern Medical Journal, Nashville

November

102 *Medical Education—Past, Present, Future. J. A. Witherspoon, Nashville, Tenn.
103 The Training of the Gynecologist. H. A. Royster, Raleigh, N. C.
104 Treatment of Puerperal Eclampsia by Cesarean Section. D. L. Maguire, Charleston, S. C.
105 Hysterectomy. R. A. Barr, Nashville.
106 Treatment of Peritoneal Infections in the Light of the Protective Nature of Peritonitis. C. W. Barrett, Chicago.
107 Our Medical Interests. I. Dyer, New Orleans.
108 Extraction of Cataract in the Capsule. H. Wood, Nashville.
109 Tuberculin Treatment of Tuberculosis. O. N. Bryan, Nashville.
110 *Case of Typhoid. T. E. Fuller, Texarkana, Ark.
111 Indications for Treatment of Movable Kidney. J. A. Gaines, Nashville.
112 The Impress of English Thought on Medicine. F. A. Jones, Memphis, Tenn.
113 Pretabetic Laryngeal Spasm. H. H. Martin, Savannah, Ga.
114 *Prophylaxis of Pellagra. C. H. Lavinder, U. S. P. H. and M.-H. S.
115 Hookworm Disease in its Relation to the Negro. C. W. Stiles, U. S. P. H. and M.-H. S.

102. Abstracted in The Journal, Nov. 13, 1909, p. 1674, also published in *The Lancet-Clinic*, Oct. 29, 1909, and the *Louisville Monthly Journal of Medicine and Surgery*, November, 1909.

110. **Typhoid.**—Otitis media as a complication of typhoid has occurred in 2.5 per cent. of the collected cases. A male, aged 21, presented the picture of a typical case of typhoid of average severity, temperature ranging from 101 to 104 F. The case was progressing nicely, and the temperature gradually falling when on January 4, the patient complained of pain in his left ear, and on the same day a purulent discharge appeared. On January 13, the other ear became involved. The temperature up to this time had been but little influenced by the complication. On January 17, considerable tenderness over the mastoids was noticed. Pain became severe and continuous and the temperature rose to 105. On January 22, the condition continued to grow worse, so both mastoids were drained. The patient reacted nicely; the pain and tenderness subsided and good drainage was maintained. For several days the patient improved, and it seemed that he would recover. After this, however, the temperature rose and the patient sank into a typical typhoid state, with low muttering delirium, coma-vigil and all the severe nervous symptoms incident to a profound toxemia, from which he died February 2. At the autopsy, healthy granulations lined the mastoid; no pus was present.

114. Abstracted in The Journal, Nov. 20, 1909, p. 1770.

Journal of Medical Research, Boston

October

116 *Lesions of the Skin and the Tumor Formations in Xeroderma Pigmentosum. W. T. Councilman and G. B. Magrath, Boston.
117 Surgical Treatment of X-Ray Carcinoma and Other Severe X-Ray Lesions. C. A. Porter, Boston.
118 *Pathologic Histology of Chronic X-Ray Dermatitis and Early X-Ray Carcinoma. S. B. Wolbach, Albany, N. Y.
119 Chronic Pancreatitis with Tumor-like Nodules in the Cat. T. Ordway, Boston.
120 *Tumors in the Common Fowl. E. E. Tyzzer, and T. Ordway, Boston.
121 *Spontaneous Tumors in Mice with Observations on the Influence of Heredity on the Frequency of their Occurrence. E. E. Tyzzer, Boston.
122 Inheritance in Mice with Reference to Their Susceptibility to Transplanted Tumors. E. E. Tyzzer, Boston.
123 *Nature of the Reaction of Tissues of Susceptible and Non-Susceptible Mice to an Incurable Tumor. A. N. Burgess, Boston.
124 *Effect of Trypsin on Cancer and on Germ Cells in Mice. S. Rushmore, Boston.

116. **Lesions of the Skin.**—Two fatal cases were studied: in the skin there was atrophy of the corium and its appendages, and of cells of the epidermis combined with an excessive formation of the horny layer and focal pigmentation. There were horny excrescences and tumor-like masses of epithelium in places, but the tumors did not penetrate below the corium and there were no metastases either in lymph nodes or internally. The pigment was intracellular. Sunlight would most probably be the direct etiologic agent.

118. **Histology of Chronic X-Ray Carcinoma Lesions.**—The most important fact in Wolbach's study is that after sufficient injury has been done complete repair does not take place. This failure is ascribed chiefly to changes in the blood supply. The transition of this dermatitis into carcinoma is explainable, to some extent at least, on the basis of degenerative changes in the blood vessels. Epithelial proliferation is found constantly over degenerative foci in the corium and the evidence points strongly to the epidermis as the least susceptible of the tissues of the skin to direct injury by the *x*-ray. The latent period of months or years between the production of the lesion and its transition into carcinoma is marked by changes in the connective tissue, presumably also changes in the nutrition of the cells, and constant proliferative processes on the part of the epidermis. The growing of the epidermis into areas of dense collagenous material points to increased proliferative power, and the hypothesis is suggested that a slow increase in power of growth takes place, finally resulting in the epithelial cells obtaining their sustenance at the expense of other living tissues.

120. **Tumors in the Common Fowl.**—Inoculation of lymphoma tissue from two cases in the fowl into normal hens gave negative results, but inoculation of a bit of one of these tumors into the pectoral muscle of the hen in which the tumor arose resulted in the growth of a tumor at the site of the inoculation.

121. **Spontaneous Tumors in Mice.**—In mice primary tumors of the lung are by far the most frequent. There are two types, the papillary cystadenoma and the epidermoid carcinoma. The frequency of tumors in three families descended from three females with tumors indicates that the development of tumor is influenced by certain invisible inherited characters or qualities. Offspring of parents one of which had a primary tumor showed a greater frequency of tumor than offspring of parents neither of which had a tumor.

123. **Reaction of the Tissues of Mice.**—In the non-susceptible mice there is developed an active immunity, the mechanism of which is apparently an inflammatory reaction which interferes with the nutrition of the tumor.

124. **Trypsin in Cancer.**—Trypsin had no appreciable effect in causing cancer in mice to disappear or in inhibiting the growth and function of the germ cells.

Providence Medical Journal

November

125 Phobias, or the Fear of Disease. J. B. Huber, New York.
126 Interruption of Pregnancy. H. G. Partridge, Providence.
127 Value of the X-Ray in the Treatment of Psoriasis. D. L. Richardson, Providence.

Journal of Biological Chemistry, Baltimore

November

128 *The Purins and Purin Metabolism of the Human Fetus and Placenta. H. G. Wells and H. J. Corper, Chicago.
129 Soluble Chitin from *Limulus Polyphemus* and its Peculiar Osmotic Behavior. C. L. Alsberg and C. A. Hedblom, Boston.
130 *Study of the Intestinal Bacteria. A. I. Kendall, New York.
131 Chemistry of Bacterial Cellular Proteins. S. M. Wheeler, Ann Arbor.

128. **Purin Metabolism of Human Fetus and Placenta.**—The investigations of Mendel and Mitchell have shown that the enzymes involved in purin metabolism in the embryo pig, appear one at a time at various periods of antenatal or early postnatal life. Wells and Corper have studied the enzymes of the human fetus and find that several enzymes which accomplish purin metabolism in the human organism are developed independently as to time during the course of intrauterine life, the fetus at term being equipped with the same enzymes as the adult. The enzymes which form hypoxanthin and xanthin from guanin and adenin are formed first and later xantho-oxidase is formed which converts hypoxanthin and xanthin into uric acid. The uricolytic enzyme which is capable of destroying uric acid by oxidation is not found in human tissue, according to Wells. He concludes that the placenta does not aid in the purin metabolism of the fetus.

130. **Study of the Intestinal Bacteria.**—Kendall finds that a change from protein to carbohydrate diet is followed by a marked change in the character of the bacteria present in the feces. Carbohydrate diet favors the growth of acidophilic bacteria while a protein diet allows the proteolytic organisms to establish themselves and become predominant. The prevalence of the latter class of organisms in the intestines is accompanied by the appearance of phenolic bodies, especially indican, in the urine. He proposes to use a carbohydrate medium like an acid dextrose broth for the culture of the acidophilic bacteria, so that they may be recognized in a mixture in which proteolytic organisms predominate. The latter do not grow well on the carbohydrate medium and hence cannot overwhelm organisms of the acidophilic type. Conversely milk and gelatin can be used to favor the growth of proteolytic organisms and thus enable a separation of them when a large number of acidophilic organisms are present. By inoculating various media with the feces, it is possible to form a judgment as to the character of the predominating organisms in the intestinal tract. If proteolytic organisms are present, the milk fermentation tubes will become the seat of great bacterial activity, the gelatin is liquefied and milk is markedly peptonized. The use of these selective media makes it possible to judge as to the completeness of the bacterial response to the nature of the diet. For example, if the experimental animal is on a carbohydrate regimen, the presence or absence of growth in protein media will indicate the presence or absence of proteolytic bacteria, since the acidophilic organisms do not grow well in these media and cannot, therefore, inhibit the growth of these organisms. Conversely, with protein diet, the presence or absence of acidophiles may be determined by inoculating the mixed fecal flora into acid dextrose broth, which is unfavorable for the development of the proteolytic types. These determinations may be made roughly quantitative for the different types by inoculating definite amounts of the mixed fecal flora into appropriate media.

Journal of Advanced Therapeutics, New York

November

132 The Electric Conception of Matter. H. McIntosh, Boston.
133 Treatment of Neurasthenia. W. L. Savage, New York.
134 Standardization of High Potential Electric Currents (continued). E. C. Titus, New York.
135 Report of Committee on Induction Coils and Alternators. F. A. Davis, Boston.

Journal South Carolina Medical Association, Florence

November

136 *Pellagra. S. M. Sandwith, London, Eng.
137 **Complement Fixation* with Lecithin as Antigen in Pellagra. C. C. Bass, New Orleans.
138 *Pathology of Pellagra. H. F. Harris, Atlanta, Ga.
139 Pellagra—Its Etiology, Pathology, Diagnosis and Treatment. C. W. G. Roher, Baltimore.
140 *Transfusion in Pellagra. H. C. Cole and G. J. Winthrop, Mobile, Ala.
141 Pellagra in Yucatan. G. [illegible] Gaumer, Izamal, Yucatan, Mexico.
142 Symptomatology of Pellagra. J. J. Watson, Columbia.
143 *Is Pellagra Communicable or Hereditary? H. H. Griffin, Columbia.
144 Theory of the Etiology of Pellagra and the Use of Junod's Blood Derivations. G. [illegible], Washington, D. C.

136, 137, 138, 140, 142, 143. Abstracted in The Journal, Nov. 13, 1909, pp. 1659, 1663, 1665, 1666, 1668, 1669.

Journal of the Kansas Medical Society, Kansas City

November

145 Scar Tissue in the Upper Respiratory Tract. W. E. McVey, Topeka.
146 Mental Derangements after Infectious Disease. H. L. Chambers, Lawrence.
147 Etiologic Factors Producing the Nonsuppurative or Dry Catarrh of Middle Ear. W. H. Graves, Pittsburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

The Lancet, London

December 4

1 Looking Back. Sir H. Morris.
2 *Surgical Treatment of Puerperal Pyemia. E. Michels.
3 *Treatment of Nevi and Other Cutaneous Lesions by Electrolysis, Cautery and Refrigeration. E. R. Morton.
4 *The Influenza Bacillus the Cause of an Epidemic of Bronchopneumonia. T. S. Wilson and J. Miller.
5 External Anthrax. R. Herley.
6 *Local Sepsis as a Factor in Rheumatism and Gout. C. W. Wirgman and H. W. Turner.
7 The Medical Profession and the Poor-Law Medical Service. Major Greenwood.

2. **Surgical Treatment of Puerperal Pyemia.**—In three cases of severe puerperal pyemia Michels tied the left ovarian vein, preventing in this way the further propagation of the septic process and obtained a rapid and complete recovery in two apparently hopeless cases. One patient died.

3. **Treatment of Nevi.**—Morton favors the carbon dioxid crayon in the treatment of nevus. He says that to say that solid carbon dioxid is merely a caustic, as some have asserted, is not quite correct. All caustics, strictly so-called, destroy tissue immediately—*e. g.*, the actual cautery and various chemical substances, but carbon dioxid does not do so. After the part has thawed out, the whole of the treated area is still living, as evidenced by the intense reaction which sets in. Local death may occur later, owing to inflammatory stasis; but this is the result of a vital reaction, and not an immediate result of the application of the irritating substance.

4. **Influenza Bacillus Cause of Bronchopneumonia.**—Pathologically, the chief points of interest in the cases reported by Wilson and Miller are the epidemic nature of the disease, and the occurrence of the influenza bacillus as the only organism present in the lung in one of the cases. From the occurrence of the cases at one and the same time, and from the fact that cultures on ordinary media failed to show any growth in the other fatal case, one may fairly conclude that the causal germ in all the other cases was the influenza bacillus. The occurrence of this germ in bronchopneumonia has long been recognized, and the fact that it is not infrequently the only organism present in the lungs is emphasized by Fraenkel. The main point of interest in the present instance is, therefore, the occurrence of the influenza bacillus as a cause of a number of cases of bronchopneumonia arising so obviously in connection with one another as to warrant the term epidemic.

6. **Local Sepsis in Rheumatism and Gout.**—Wirgman and Turner report 42 cases of rheumatism and gout in the majority of which they believe pyorrhea to have been the direct cause because a cure of the local condition was promptly followed by a subsidence of the constitutional symptoms.

British Medical Journal, London

December 4

8 Modern University Ideals. G. A. Gibson.
9 *Greek Medicine in Rome. Sir T. C. Allbutt.
10 *Some Uses of Opium. E. Smith.
11 The Pituitary Body. W. B. Bell.
12 Kala-Azar in the Far East. P. W. Bassett-Smith.

9. Also published in *The Lancet*, Nov. 27, 1909.

10. **Some Uses of Opium.**—It is often forgotten, says Smith, that opium has stimulating as well as sedative properties, and that as a general stimulant to the nerves, the brain, and all the organs of life its value even for this quality alone entitles it to a high place in the esteem of the practical physician. Opium and morphin are not quite the same in this respect.

Of the two it is in the former that the quality is most active. The stimulating effect is best brought out by the use of small doses given at convenient intervals, for in a full dose the sedative influence of the drug is so decided that any primary stimulating effect passes off too quickly to be noticeable. This stimulating action is well seen in cases of indolent ulcers of the skin and mucous membrane. Such sores which had resisted previous treatment will be found to show a surprising improvement after only a few doses of the remedy. The pale, unhealthy looking surface becomes red and is soon covered with closely-set granulations, while its secretion changes from a thin serous fluid to healthy-looking pus. This invigorating influence can be turned to account in the case of obstinate sores occurring in cachectic children. The ulcerative stomatitis which is so common among the ill-fed and badly-nourished children of the very poor often shows little disposition to heal even when treatment is reinforced by a generous diet and healthy surroundings. When repair is thus at a standstill, a few drops (2 to 5) of laudanum, given twice a day, quickly induce a welcome change in the local conditions and start an improvement which goes on smoothly to a cure.

The nervous trepidation called "stage fright" may be forestalled and disarmed by a small dose, five or six drops, of laudanum taken half an hour or so before the trial is to begin. Again, the nervous trembling and depression which may be induced by shock and are apt to follow a surgical operation, are amenable to the same influence. The above dose, repeated, if necessary, several times, at intervals of half an hour, is usually followed by tranquility and sleep. The same treatment will go far to relieve the distress of dying persons. Under the influence of a few drops of the tincture the painful uneasiness abates, and is succeeded by a period of restful calm, which may be maintained by judicious repetitions of the remedy until the close. Again, the profound mental depression which sometimes afflicts elderly people, making their lives a burden to themselves and to their relatives, may be alleviated by the same means. In this, as in the preceding cases, the drug acts as a stimulant and something more; it quiets the nervous irritability and gives a welcome spur to jaded nerves.

Medical Press and Circular, London

November 10

13 Suppuration in the Accessory Nasal Sinuses. J. Donelan.
14 Darwinism and Medicine. J. A. Lindsay.
15 Natural History and Diagnosis of Cirrhosis of the Liver. W. B. Warrington.
16 Arteriosclerosis and Allied Conditions. S. H. Hall.

November 17

17 Vaccine Treatment in General Practice. R. J. Rowlette.
18 Darwinism and Medicine (continued). J. A. Lindsay.
19 Study and Treatment of Acute Peritonitis. Professor Federman.
20 The Influence of the Tissues on Disease. J. Ritchie.
21 *Fracture of the Axis Vertebra, Reduction; Recovery. A. Bruce and D. Wallace.

21. Fracture of Axis Vertebra.—The patient, a ship's engineer, was stooping oiling his engine when someone called his name, causing him to turn his head sharply. He was conscious of a sudden pain in his neck, and felt a lump just below the occiput. He found that he had lost the power of moving his head from side to side, or anteroposteriorly, with the exception of a slight amount of forward movement. Apart from this, he had comparatively few symptoms and was able to continue his voyage. He was seen by a medical man in Helsingsfors, who diagnosed the condition as rheumatism, and on his return to Edinburgh, in four weeks' time, he was seen by his own physician, who found in addition to the fixation of the head and a projection at the back of the neck, some evidences of pressure on the cord in the shape of pains in the arms and legs, and occipital neuralgia. Skiagrams were taken which showed that the atlas vertebra was dislocated forward, and probably that the odontoid process was fractured. As no urgent symptoms were present, it was thought inadvisable to reduce the deformity.

Five months later as he was sitting on a chair, one of his children snatched a shawl which was around his neck and gave him a sudden jerk. He again had severe pain in the neck, which was quickly followed by signs of pressure on the cord, weakness of the arms, difficulty in walking, and retention of urine. As these symptoms increased in severity, he was sent to the hospital. On admission he was found to be completely paralyzed in all four extremities, with the exception of slight power of moving the fingers of the left hand. His diaphragm was also paralyzed, the abdomen falling in with inspiration, and his respirations, which were extremely shallow, were carried on almost entirely by the aid of the extraordinary muscle of respiration. His superficial reflexes (abdominal and cremasteric) were abolished; the tendon jerks of both arms and legs were exaggerated; there was a double Babinski, double ankle clonus, and a slight jaw-jerk.

As the patient's condition was extremely critical, it was decided to attempt reduction. A towel was passed under the neck over the projecting axis vertebra and was held by an assistant, while Wallace made gentle traction on the cranium. After a little manipulation the bones were felt to come into a more normal position with a slightly grating sound and immediately thereafter the diaphragm was noticed to move freely. Respiration was soon reestablished, and in half an hour or so the patient had regained the power of moving his limbs. His head was kept steady between sand-bags, one being also placed under the axis vertebra so as to allow the backward drag of the head to keep the bones in position. The man was then put up in a poro-plastic splint so as to immobilize the head absolutely. After reduction he had an attack of congestion of the lungs lasting for a few days, but except for that he improved steadily and is now almost perfectly well though he still wears a fixation apparatus.

Clinical Journal, London

November 17

22 The Period of Repose in Acute Appendicitis. C. B. Lockwood.
23 Diagnosis of Uterine Hemorrhage. H. MacNaughton-Jones.

Journal of Tropical Medicine and Hygiene, London

November 15

24 Ankylostomiasis in the Malay States. E. N. Graham.
25 Surgery of Injuries from Wild Beasts. R. Howard.
26 Use of Quinin Alkaloid. R. Howard.

Journal of Obstetrics and Gynecology of the British Empire, London

November

27 *Statics of the Pelvic Viscera; Their Relationship to the Operative Treatment of Uterovaginal Prolapse. G. A. Casalis.
28 *Anatomy of Tubal Convolutions and the Mechanism of Tubal Occlusion. J. Young.
29 Puerperal Septicemia with Double Septic Pneumonia, with Effusion—Death Thirty-four Days After Confinement. F. A. Simpson.

27. Statics of Pelvic Viscera.—Casalis summarizes his views as follows:

1. The pelvic viscera are both suspended and supported organs.
2. The pelvic floor forms one solid mass separating the pelvic cavity from the exterior, just as the anterior abdominal wall separates the abdominal cavity from the exterior.
3. It includes part of the viscera as well as the so-called ligaments of the uterus, of which they are an integral part.
4. Relaxation of part or the whole of this fibromuscular, cellular, vascular and peritoneal diaphragm results in the production of the different forms of pelvic displacements.
5. Relaxation of the upper pelvic segment leads to retrodeviations and partial uterine descent; that of the lower to cystocele, colpocele and rectocele; relaxation of the upper and lower segments to classical prolapse. The intensification of the combined conditions is productive of hernia of the pelvic contents or total prolapse.
6. Relaxation of the upper pelvic segment is curable by the so-called round ligament operations, of which Alexander's and Simpson's are the best types. Descensus uteri, especially in middle-aged women, demands ventrofixation combined with plastic operations on the vagina and perineum.
7. Prolapse should always be operated on. Classical prolapse should be operated on by a combined anterior and posterior colpoperineorrhaphy, with union of the paravaginal tissues in the middle line, and a myorrhaphy of the levator ani and frequently also in addition a ventrofixation; cystocele and rectocele by the combined perineal and vaginal plastic operations.
8. Hernia of the pelvic contents justifies all these preceding operations, but may best be treated by vaginal or abdominal hysterectomy with suture in the middle line, and if possible to the abdominal incision of the over-stretched perivascular sheaths. In extreme cases, the interposition operation may be tried, or when everything else fails P. Müller's excision of the whole vaginal canal.

28. Anatomy of Tubal Convolutions.—It is deemed probable by Young that the recession of the fimbriæ in cases of hydrosalpinx and tubal pregnancy is dependent on, and occurs during, distention of the ampullary portion of the tube. In tubal gestation the tube becomes distended to accommodate the growing ovum situated in its wall, or the products of abortion—ovum and blood—which escape into the tube lumen as the result of internal rupture. In hydrosalpinx the distention is due to the gradual accumulation of the fluid contents of the tube. The formation of a hydrosalpinx and, in all probability, of a hematosalpinx in the outer portion of the tube can occur only after the establishment of an obstruction of the abdominal opening. There must be, also, in the case at any rate of the hydrosalpinx, an obstruction on the inner side. This, in view of the more viscid nature of the blood and the fact, moreover, that it clots soon after being poured out, is probably not a necessity for the production of a hematosalpinx. As the consequence of a salpingitis or the congestion associated with tubal pregnancy, the fimbriæ become swollen and, as expansion in an outward direction is prevented by this ring, they become pressed together; this leads to a functional occlusion of the opening. The tension to which the tube is subjected by the increasing contents leads to a stretching and thinning out of the tubal walls. The rigidity of the peritoneal ring tends to prevent the ostium from becoming opened out. In some cases, however, the ring, also, gives way, and the relief of the obstruction at the outer end thus produced may result in an escape of contents. The tube, then, probably more or less regains its normal diameters and there may be present only a slight, if any, alteration in the fimbriæ. If the ring holds out, a different sequence of events probably ensues.

The mucous membrane of the tube and the inner coat of muscle, are intimately adherent the one to the other, and together may be considered to form a well-supported tube lying within a loosely fitting and distensible sheath formed by the outer muscle coat and peritoneum. The inner "tube" is strengthened on its internal aspect by the longitudinal mucous ridges which enable it to withstand, probably with a considerable measure of success, any longitudinal strain. For this reason, the distending force acting from within will lead to a stretching of the inner portion of the tube wall more in the transverse than in the longitudinal direction. This disproportion between the degrees of expansion of the tube in the different diameters is, however, to a certain extent compensated for by the fact that, with a taut peritoneal ring, the loose fit between the two parts of the tube wall enables the mucosa and inner stratum of muscle to be drawn within the outer muscle layer and peritoneum to take part in the formation of the wall of the tube sac. The same process in all likelihood occurs to some extent even with a giving way of the peritoneal ring, but as this means a certain degree of inward movement of the outer portion of the tube wall the recession of the fimbriæ is obscured. It would seem probable that after the disappearance of the fimbriæ within the tube lumen, the occlusion of the ostium is completed either by a fusion of the fimbriæ with one another or by a union of the margins of the "peritoneal ring."

British Journal of Children's Diseases, London

October

30 Congenital Heart Affections, Especially in Relation to the Diagnosis of the Various Malformations (continued). G. Carpenter.
31 *Diagnosis of Chronic Pulmonary Tuberculosis in School Children. J. Allan.
32 *Genetous Type of Imbecility with Single Ptosis.* J. B. Barrett.
33 Epidemic Cerebrospinal Meningitis in Paris. J. D. Rolleston.

November

34 Chronic Pemphigus: Notes of Bacteriologic Findings. A. J. Cleveland and G. P. C. Claridge.
35 Etiology of Congenital Word Blindness; An Example. W. J. Rutherfurd.
36 Delayed Chloroform Poisoning. J. B. Barrett.
37 The Cremasteric Reflex. E. M. Corner.
38 Spontaneous Intracystic hemorrhage into a Cystic Hygroma of the Neck in an Infant. C. H. Whiteford.
39 Anterior Poliomyelitis Limited to Lower Dorsal Region, and Giving as Its Most Prominent Symptom Paralysis of the Abdominal Muscles on Both Sides. C. P. Lapage.

31. Chronic Pulmonary Tuberculosis.—During a term of fourteen months' residence at the Royal Alexander Hospital for Sick Children, Brighton, 954 children came under Allan's notice as in-patients, and of these about 600 were between the ages of 4 and 12. Of that number 2 cases were diagnosed as chronic phthisis, while 6 cases were considered doubtful. As regards the out-patients, of about 3,000 children between the ages of 4 and 14 treated during that period only 4 had chronic phthisis, while about 20 were under observation as doubtful cases.

Australasian Medical Gazette, Sydney

October

40 Gastro-Staxis. G. L. O'Neill and R. S. Skirving.
41 Syphilis in the Ear, Nose and Throat. W. N. Robertson.
42 *Diabetes Insipidus. J. C. Verco.
43 Diagnosis [illegible] I. Saw.
44 Primary [illegible] Arteries: Sudden Death in the Pu [illegible]
45 Aspects of Radiotherapy in Relation to Bacterial Diseases of the Skin. A. A. Doyle.
46 Excision of the Scapula. R. H. Marten.
47 Penetrating Wound of the Orbit and Brain. C. MacLaurin.
48 *Congenital Cystic Elephantiasis.* W. W. Giblin.
49 Muckadilla for Obstinate Rheumatism. E. W. K. Scott.
50 Tuberculous Peritonitis. E. H. Binney.

42. Diabetes Insipidus.—Verco's case of diabetes insipidus was under observation for 12½ years. The two drugs used consecutively—tincture of valerian, increased to 2 drams four times a day, and codein, increased to a grain four times a day—in a lad 13 years of age, had no appreciable influence over his polyuria. The latter seemed to have a prejudicial effect on his general health, and reduced his weight. The disease would seem not to have been congenital, but to have arisen when he was only 3½ years old, and to have followed an attack of measles, complicated by laryngitis and otitis media, which left him delicate and with a suppurating middle ear. He remained diminutive in stature (his twin brother was nearly 6 feet high and he was only 5 feet 4 inches) and with a high pitched feminine voice, which may be attributed to his complaint possibly; but this did not keep him in a state of infantilism, for his axillary, pubic and facial hair were normally developed; nor did it interfere with his fat production, for when seen after it had lasted 21 years he weighed 136½ pounds, while five years before that, when about 21 years of age, he weighed 122 pounds, and when 13 years old he weighed 95½ pounds. His plumpness, therefore, kept pace with his age, and was not restricted. The necessity for holding large quantities of water gradually led to a greatly increased capacity of his bladder, and when first seen, at 13 years of age, it reached to his umbilicus and contained 45 ounces by measurement, and that was only incidental, and not an experiment to determine how much it could possibly contain.

48. Congenital Cystic Elephantiasis.—The condition of the fetus in Giblin's case was so unusual as to form a pathologic puzzle. Normal in all parts save right arm, thorax, left upper arm and neck, one found these so distorted by serous pouches that they were almost swollen beyond recognition. The right hand was the same size as the head, viz.: 11½ inches in circumference, and could only be recognized as such by being divided by sulci into five digitations. The thorax was 16 inches in circumference, and the mammary region hung in four pouches. The skin of the affected parts was so distended as to be almost translucent, and the epidermis easily peeled and allowed serum to flow.

Bulletin de l'Académie de Médecine, Paris

November 9, LXXIII, No. 36, pp. 259-282

51 *Conical Uterine Cervix. (Traitement chirurgical d'une cause très fréquente de dysménorrhée et de stérilité.) S. Pozzi.

November 16, No. 37, pp. 283-318

52 *False Cancers and Inflammatory Tumors in the Abdomen. (Faux cancers et tumeurs inflammatoires du ventre.) Le Dentu.
53 *Prophylaxis of Typhoid Fever. E. Delorme.

November 23, pp. 319-334

54 *Diarrheic Gastroenteritis in Infants. (Recherches sur les diarrhées des nourrissons.) E. Metchnikoff.

51. Conical Cervix as Cause of Dysmenorrhea and Sterility.—Pozzi refers to an infantile type of the internal genitalia consisting essentially in the conical shape of the cervix with extremely small lumen and exaggerated anteflexion of the uterus, all of which may be encountered in women otherwise well developed and without atrophy of the uterus, although it is more common with other signs of infantilism. Dysmenorrhea is the rule and also sterility. The kinking of the cervix causes stagnation of mucus with consequent inflammation, obstructing the lumen still more. He cuts into the lip of the cervix on each side and then excises a small triangular piece from the center of each of the four raw surfaces made by the two incisions. He then sutures the mucosa of the lumen to the mucosa on the outer aspect of the cervix, thus suturing the four raw surfaces and leaving the lumen of the cervix widely gaping. In his experience with 54 cases in which he has applied this technic, 14 of the patients have conceived since, and he never has noticed any interference with delivery from the rigidity of the cervix. The operation even seems to promote the further development of the infantile uterus. The only contraindications are when the genitalia are of extreme infantile type and when there are concomitant infectious processes in the adnexa. He calls the operation *stomatoplastic par évidement commissural.*

52. **False Cancers in the Intestine.**—Le Dentu reports a case in which a tumor from inflammation alone presented the features of a cancer of the transverse colon, apparently spreading to the spine. The absence of continuous pain and of acute or chronic obstruction of the bowel suggested its true nature, confirmed by the subsidence of the tumor under absolute repose and a little potassium iodid or tincture of iodin and large cataplasms to the abdomen. A preceding mucomembranous enterocolitis explained the inflammatory process; it had not been accompanied by abdominal pain or fever but had induced pain in the lumbar region diagnosed for a long time as lumbago. The abdominal aorta displayed such marked pulsation at first that an aneurism was suspected, but this subsided as the inflammation died down, and the lumbago also vanished. Le Dentu compares this case with others on record and points out that four types of these pseudocancers may be recognized: 1, that due to a circumscribed interstitial colitis with hypertrophy entailing more or less pronounced stenosis; 2, that due to simple pericolitis with adhesions, not sufficiently severe to form much of an inflammatory tumor; 3, that due to diffuse pericolitis, causing the production of a long tumor, the shape and size recalling the features of the large intestine. In one such case in his experience the ascending colon and the cecum surrounded by inflammatory exudate, constituted a long round mass, the upper end of which was lost behind the liver. As this patient, a young woman, had previously had a pulmonary affection suspicious of tuberculosis, he assumed a tuberculous process in the intestine, but under absolute repose in bed and cataplasms the pseudoneoplasm subsided in a few weeks and has not returned since. 4. The fourth type is the exuberant form of pericolitis. The inflammatory exudate glues into a solid mass the loops of the small intestine, the subperitoneal connective tissue and even the glands in front of the spine, forming a voluminous mass in the midst of which it is impossible to recognize the swollen intestine. The case reported in detail evidently belonged in this category. The products of the inflammation may be absorbed but suppuration is not unusual. The most puzzling cases are those in which the tumor is well defined, of a firm consistency and still movable, or when so many elements are soldered together in it that the whole simulates a malignant process. Tentative application of proper medical measures will save the patient a major operation in some cases. Acute and febrile phenomena may be absent from the history of the case. Before stating that the neoplasm palpated is a cancer, it is well to try a tentative course of absolute bed rest, moist warmth to the abdomen, with antisyphilitic treatment if there is a suspicion of syphilis. Signs of obstruction, pain, vomiting, demand the surgeon. He reviews the various operative measures that have been applied, including Robson's double short-circuiting technic.

53. **Prophylaxis of Typhoid Fever.**—Delorme cites statistics which show that the health of troops in a garrison reflects the conditions in regard to the public health in the towns where they are stationed. It is thus seen that the typhoid mortality is low or has become low recently in most of the cities of France except those in the south. Marseilles, Avignon, Brest and Lunéville have a typhoid mortality of 29.2, 48.8, 28 and 25 per thousand inhabitants, which he ascribes to the contamination of the drinking water. Nice is included in this group.

54. **Proteus Responsible for Diarrhea in Infants.**—Metchnikoff's research and conclusions were mentioned recently in the Paris letter, December 11, page 2017. He found the *Bacillus proteus* answer all the bacteriologic and clinical tests as the causal agent of summer diarrhea in young infants and was able to reproduce the syndrome at will by inoculating suckling rabbits and monkeys with cultures of the proteus or with diarrheic stool from sick infants. In prophylaxis measures must be taken to destroy the proteus which is found so constantly on the surface of articles of food exposed to the air, on the hands, etc. Adults are not made sick by the proteus but can communicate it to infants and Metchnikoff found it in large numbers in the stools of 36 out of 40 infants with gastroenteritis. The greater number of flies in the summer, carrying the proteus from the dejecta of domestic animals, explains the prevalence of summer diarrhea in the less resistant infants, including the breast-fed. The proteus is readily destroyed by desiccation or by dipping grapes, vegetables, etc., in boiling water for a few seconds or singeing the surface of cheese, etc., and by washing the hands with soap and water and also the breast before the infant is allowed to nurse. It is possible that some other microbe in the intestinal tract may favor the proliferation of the proteus.

Presse Médicale, Paris

November 3, XVII, No. 88, pp. 777-784

55 The Mercuric Chlorid and Acetic Acid Test for Bile Pigments in the Stools. (Exploration clinique des voies biliaires et de l'intestin par la réaction du sublimé acétique dans les selles.) H. Triboulet.
56 Pathogenesis of Tabes and of Parasyphilitic Affections in General. A. Sézary.
57 Gauge for Extent of Flexion of Joints. (Compas goniomètre pour la mensuration des angles en clinique.) H. Vennin.

November 6, No. 89, pp. 785-800

58 Sporotrichosis. (Sporotrichose hypodermique gommeuse, ulcéreuse, disséminée: sporotrichose de de Beurmann.) L. Landouzy.
59 Tincture of Iodin in Emergency Treatment of Burns. (La teinture d'iode dans le traitement d'urgence des brulures.) P. Descomps.
60 Serodiagnosis of Cerebrospinal Meningitis. (Réaction de fixation de Bordet-Gengou pour le diagnostic de la méningite cérébro-spinale.) M. Cohen.
61 Intestinal [illegible] r. (L'entérorragie dans la fièvre [illegible] Iodinos.
62 Quinin Tet [illegible] M. Rigollet.

November 13, No. 91, pp. 809-816

63 *Gastroenterostomy and Gastric Hypersecretion. L. Meunier.
64 Clinical Dosage of Chlorids in the Urine. A. Martinet.

63. **Gastric Hypersecretion and Gastroenterostomy.**—Meunier has found that gastroenterostomy for painful hypersecretion induces some reduction in the gastric acidity, but no modification in the route of evacuation of the stomach which proceeds as before by way of the pylorus. The main difference in the conditions in the stomach is the presence of comparatively large amounts of intestinal juice. The reflux of intestinal juice through the new opening helps to neutralize the hydrochloric acidity of the stomach content, and by its direct action on the stomach mucosa exerts an inhibiting influence on the secretory glands in the stomach. The combination of these two actions, chemical and physiologic, relieves the patient permanently of his former disturbances. Even if the new opening becomes obstructed in time, the stomach has been given such a long rest that the continued hypersecretion no longer induces the hyperesthesia and spasm responsible for the sensory disturbances in the past.

Semaine Médicale, Paris

November 24, XXIX, No. 47, pp. 553-564

65 *Multiplicity of Symptoms and Lesions of So-called Acute Epidemic Anterior Poliomyelitis. J. Lhermitte.

65. **So-called Anterior Poliomyelitis.**—Lhermitte compares the reports on various epidemics of acute anterior poliomyelitis, calling attention to the fact that the syndromes described do not form a single well-defined morbid entity. As a fact, the reports include a number of various inflammatory affections of the nervous system and meninges, the list including simple or hemorrhagic polioencephalitis, diffuse encephalitis, diffuse myelitis, meningomyelitis, meningo-radiculitis and polyneuritis, all of which have been reported as true anterior poliomyelitis. He is convinced that further study of the lesions of the cerebrospinal axis consecutive to acute meningitis will explain the close connection between the epidemics of acute spinal paralysis in children and adults and the epidemics of cerebrospinal meningitis. The prognosis varies

materially in the different affections listed as anterior poliomyelitis. A paralysis of meningeal origin can be differentiated from the paralysis of anterior poliomyelitis by the meningeal symptoms: lymphocytosis or polynucleosis in the cerebrospinal fluid, severe pain in the limbs, the slower retrogression of the paralysis and the absence of consecutive atrophy of the muscles involved. No one descriptive term can be applied to all these syndromes.

Deutsches Archiv für klinische Medizin, Leipsic

XCVII, Nos. 5-6, pp. 409-620. Last indexed Nov. 13, p. 1699

66 Tension of Muscles in Children and Contracture. (Infantile Muskelspannungen und ihre phylogenetische Bedeutung für die spastischen Kontrakturen.) K. Hasebroek.
67 *Tests of Liver Functioning. (Zur funktionellen Leberdiagnostik.) H. Hohlweg.
68 Empyema and Pyopneumothorax. (Luft-Flüssigkeitsansammlungen im Thorax.) C. Klieneberger.
69 *Diagnostic Importance of Peptid-splitting Ferment in Cancerous Stomach. (Vorkommen eines peptidspaltenden Fermentes im carcinomatösen Mageninhalt.) O. Neubauer and H. Fischer.
70 *Fever in Diabetes. (Beobachtungen am fiebernden Diabetiker.) W. Brasch.
71 *Relations Between Rachitis and Blood-producing Organs. (Die rachitische Megalosplenie: Anaemia pseudoleucaemica infantum.) E. Aschenheim and E. Benjamin.
72 Beat-volume and Work of the Heart. (Ueber Schlagvolumen und Herzarbeit des Menschen. II. Zur Kritik der Plesch'schen Methode.) A. Müller. (III. Ergebnisse der Untersuchungen an Normalen und in pathologischen Zuständen.) Id. and S. Bondi.
73 Liver Dulness with Abdominal Affections. (Verhalten der Leberdämpfung bei abdominalen Erkrankungen.) Kirchheim.

67. **Tests of Liver Functioning.**—Hohlweg remarks that the more we learn about the functioning of the liver, the greater our amazement at the manifold processes that take place in it. The products of the work of the liver cells are not accessible for direct examination but Glässner has found that with processes destroying the parenchyma of the liver (syphilis, fatty liver, cirrhosis and phosphorus), the amino-acids introduced are more or less modified when eliminated, while with other liver affections (cancer of the liver, catarrhal jaundice, congested liver) no disturbance of the amino-acid metabolism is manifest. He suggests that by this means the functioning capacity of the liver can be estimated, and Hohlweg has obtained corresponding findings, confirming Glässner's statements although by other means. He experimented with levulose and compares his clinical findings with those already reported by others: 100 gm. levulose, dissolved in 300 gm. water was ingested fasting in 41 cases of various liver affections. The tolerance for levulose was reduced most with cirrhosis of the liver, catarrhal jaundice and obstruction of the common bile duct with a stone. A stone in the cystic duct or liver tumor did not entail alimentary levulosuria. The difference in this respect was striking when the bile duct was obstructed by a tumor or a gall-stone. All affections that injure the parenchyma thus reveal the functional disturbance by alimentary levulosuria. On the other hand, the assimilation is scarcely interfered with in case of enlargement of the liver, leucemia and congestion or tumors. These clinical findings were confirmed by the results of experimental research, pathologic conditions in the liver being induced by injections of toluilendiamin, phosphorus or a mixture of chloroform, oil and paraffin.

69. **Diagnostic Importance of Peptid-splitting Ferment in the Stomach Content in Cancer.**—This article states that a ferment is present in the carcinomatous stomach content which splits glycyltryptophan. This ferment is destroyed if hydrochloric acid is present in the proportion of 0.36 per cent. and over. The discovery of this ferment is thus an important aid for differentiation of cancer. Neubauer never encountered this ferment in 26 cases of various non-malignant stomach affections nor in the normal stomach, while it was constantly present in 17 cases of cancer, and in 4 out of 6 cases in which cancer was suspected. The only drawback is that the presence of blood or pancreatic juice annuls the test. In the cancerous stomach digestion proceeds farther than in the normal stomach, probably as the result of the presence of some special autolytic ferment which is lacking in normal conditions. Hence, if the stomach content contains a substance capable of splitting peptids, the assumption is evident that some autolytic ferment must be present. Free tryptophan stains a reddish violet on addition of bromin water while there is no change in tint if the tryptophan is bound. The stomach content is examined for blood and bile, filtered and tested with bromin water for a color reaction. If all these tests are negative, then 10 c.c. of the filtrate is mixed with a little glycyl tryptophan, a layer of toluol poured on top and the glass set in the incubator for twenty-four hours. Then 2 or 3 c.c. taken with a pipette from under the layer of toluol is transferred to a test-tube and a few drops of a 3 per cent. solution of acetic acid are added, after which the fumes from a vial filled with bromin are allowed to flow into the tube until a slight brownish tint becomes evident in the upper part of the tube which is then shaken. The fluid then turns pink in the presence of free tryptophan.

70. **Fever in Diabetics.**—Brasch tabulates the metabolic findings in nine diabetics during a febrile affection. The latter may increase or reduce the glycosuria in diabetics, but the febrile affection itself is of less moment in this respect than the severity of the diabetes.

71. **Relation of Rachitis to the Blood-Forming Organs.**—This communication from Pfaundler's clinic at Munich ascribes to a rachitic primary injury of the bone marrow the condition known as infantile pseudoleucaemic anemia. It does not belong in the group of actual anemias but is merely a high degree of rachitic myelopathy entailing myeloid metaplasia. The disturbance should be called rachitic splenomegaly.

Deutsche medizinische Wochenschrift, Berlin

November 11, XXXV, No. 45, pp. 1953-1984

74 *Serotherapy in Ophthalmology. (Ueber die quantitativen Verhältnisse des Antikörper-Uebertritts in die Cornea bei der passiven Immunisierung; ein Beitrag zur Serumtherapie in der Augenheilkunde.) P. Römer.
75 Further Research on Tsetse Flies and Trypanosomes. Kleine.
76 *Decisive Importance of Reduced Oxygen Tension of the Tissues as a Stimulus to Blood P[illegible] gebende Bedeutung der verminde[illegible] der Gewebe für die Anregung der [illegible] and W. Aldenhoven.
77 Physiology and Pharmacology of Magnesium and Calcium. S. J. Meltzer.
78 Apparatus for Compressing Air. (Der Luftkompressor im Krankenhause.) F. Kuhn.
79 *Intermittent Limping. (Kasuistisch-therapeutische Mitteilungen über intermittierendes Hinken.) H. Goldbladt.
80 *Decapsulation of Kidney in Eclampsia. (Nierendekapsulation bei Eklampsie.) Ziemendorff.
81 *Blindness from Adulteration of Medicine with Wood Alcohol. (Toxische Erblindung nach Genuss von verfälschtem Kinderbalsam—Holzgeistvergiftung.) A. Natanson.

74. **Antipneumococcus Serotherapy with Serpiginous Ulcer of the Eye.**—Römer appeals to general practitioners to apply serotherapy at once in cases of beginning *ulcus serpens* as the only means of saving a number of eyes otherwise irretrievably lost. In 16 out of 40 cases in his clinic at Greifswald in the last two years, from 12 to 16 days had elapsed after the injury of the cornea which is generally the cause of this lesion—a slight superficial injury allowing the entrance of the pneumococcus. Extensive clinical and experimental research has shown that pneumococcus serum if used soon after the injury of the cornea is liable to have a very favorable influence on its healing; even a few hours' delay may decide the fate of the eye. He urges the practitioner to make an immediate injection of antipneumococcus serum and send the patient at once to an ophthalmologist. When the ulcer is once developed, serotherapy has much less chance. He then appeals to ophthalmologists to use larger doses of the serum and apply it locally in the form of a powder as well as injecting the serum directly into the cornea and under the conjunctiva.

76. **Deficiency of Oxygen as Stimulant for Blood Production.**—Kuhn cites numerous authors who have shown that a lack of oxygen is a potent stimulus for the production of blood. He shows further that the action of arsenic and other tonics is the result of a deficiency in oxygen, entailed by the destruction of the blood corpuscles by these drugs. He describes a number of experiments on animals which confirm his assumption that the reduced oxygen tension of the tissues is of decisive importance for the production of new blood, and that this applies to all measures which are known to act by increasing the production of blood. Primary lack of oxygen is the simplest and most effectual means of increasing

the production of blood as evidenced in the influence of altitude and of the suction mask which restricts the amount of air inhaled while permitting free expiration.

79. **Intermittent Claudication.**—Goldbladt expresses surprise that this affection and local arteriosclerosis in general have received so little attention from the physico-therapeutic side. The same old routine of iodin internally, light massage and walking exercises is applied over and over again, but he urges the importance of active hyperemia with electric baths, hot air douches and the thermophore, which have given brilliant results in 4 cases in his experience. The application of heat promotes absorption and retrogression of the endarteritis, or parallel or collateral vascular routes may develop under its influence. The main factor in the benefit is the prompt hyperemia and slight perspiration.

80. **Decapsulation of the Kidneys in Eclampsia.**—Ziemendorff regards decapsulation as the promptest and surest method of evacuating the kidneys when they have become impermeable from any cause. They are unable to throw off the toxins that have gathered in them and diuretics have no effect in the severer cases of eclampsia but only aggravate the condition. Decapsulation opens a way for escape of the toxins; the wound should not be closed at once but left open with a drain. In a case reported the eclamptic seizures ceased with the decapsulation and in a few days the albumin in the urine had dropped from 15 to 0.5 per thousand; the patient did not rouse from coma until twenty-four hours after the decapsulation, but then rapidly recovered.

81. **Blindness from Medicine Adulterated with Wood Alcohol.**—Natanson states that 80 cases of blindness or death from wood alcohol are known in Russia and he reports another case of blindness. Senkowitsch has also encountered [illegible] cases of blindness and 4 fatalities from this cause. The combination of toxic blindness with severe gastrointestinal disturbances confirmed the assumed etiology. The blindness came on the second or fourth day, followed by some recovery of vision for a few days, after which secondary incurable atrophy of the optic nerve gradually developed. In 6 of the cases mentioned the wood alcohol had been used to adulterate aromatic spirit (*Kinderbalsam*), including Natanson's own case. [Since this article was published Natanson's death at Moscow has been reported.—Ed.]

Medizinische Klinik, Berlin

November 7, V, No. 45, pp. 1693-1726

82 Anatomic Changes in Salivary Glands with Acute Mercurial Poisoning. (Ar der Speicheldrüsen bei akuter Eichhorst.
83 Traumatic Hyster: zur Differentialdiagnose der H: Schultze. Commenced in No. 44.
84 *Experimental Research on Thrombosis. (Thrombenbildung.) E. Zurhelle.
85 *Venous Thrombosis and Embolism of Pulmonary Artery. L. Aschoff. R. Kretz.
86 Epidemic of Acute Spinal Paralysis. (Die akute spinale Kinderlähmung im rheinischwestfälischen Industriebezirk.) Reckzeh.
87 Surgery of Hip Joint. (Neue Methoden zur Eröffnung des Hüftgelenkes.) K. Lengfellner and F. Frohse.
88 Reflected Sunlight the Curative Factor in the Mountains and at the Seashore. (Identität der Heilfaktoren im Hochgebirge und an der See.) C. Widmer.
89 Veronal and Epilepsy. Liebl.
90 Bacteriologic Findings in Certain Cases of Dysentery. (Ueber eigenartige bakteriologische Befunde bei Ruhrkranken.) P. Kuhn and F. Woithe.

84 and 85. **Thrombosis.**—Zurhelle discusses the connection between postoperative thrombosis, infection and depositing of fibrin, his conclusions from much research being that a retarding of the blood stream is the main factor in the production of a thrombus and that the blood-plates pile up mechanically in the more sluggish blood stream. This conglutination of blood-plates is entirely different from coagulation of fibrin, and the latter is not necessary for the formation of a thrombus; when it occurs it is secondary. His experiments show the uselessness of striving to prevent thrombosis by reducing the coagulating property of the blood, as we are unable to act on the blood-plates; all we can do is to prevent the blood stream from becoming sluggish. Aschoff suggests that it may be possible to prevent thrombosis by changing the physical conditions in the circulation, combating any tendency to a slower pulse rate. He does not think that thrombosis is always of infectious origin, but a superposed infection transforms a primary insignificant thrombus into a dangerous thrombophlebitis.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XX, No. 5, pp. 727-918. Last indexed November 20, p. 1785

91 *Tetany in Rabbits. (Tetanie der Kaninchen.) W. Haberfeld and P. Schilder.
92 *Skiagrams of Chronic Joint Disease. (Die chronischen Gelenkerkrankungen im Röntgenbilde mit Ausnahme der Tuberkulose und der Lues.) E. Jacobsohn.
93 *Serum Treatment of Hemophilia. F. Trembur.
94 Primary Cardiospasm after Trauma, with Pear-shaped Enlargement of Esophagus and Suppurative Parotitis. A. Heisler.
95 *Bacteriology of the Blood in Surgical Affections. (Bakteriologische Blutuntersuchungen bei chirurgischen Infektionskrankheiten.) N. Spassokukotzky.
96 *Operative Treatment of Gastric Affections. (Die chirurgische Therapie bei Magenleiden.) T. Kocher.
97 Typhoid and Its Relations with the Biliary Passages. (Ueber Typhus abdominalis und seine Beziehungen zu den Gallenwegen.) E. Fraenkel.

91. **Tetany in Rabbits.**—The research reported apparently confirms beyond question that tetany in rabbits is the result of loss of parathyroid functioning. The older animals bear the loss of the parathyroids better than the younger. In some rabbits the tetany did not develop after removal of the four main parathyroid bodies, but this was due to the existence of accessory parathyroids in the thymus and tetany followed inevitably the removal of the thymus in these animals. The vicarious hypertrophy of the parathyroids is also further evidence of the importance of the parathyroids in the vital processes.

92. **Roentgen Findings in Chronic Joint Affections.**—Tuberculous and syphilitic joint processes are not included in this study but all other chronic joint affections are reviewed and the importance of Roentgen examination as an aid in differentiation and prognosis is emphasized. The findings are classified and examples are given of skiagrams of focal processes, softening of the bone, periostitis, proliferative and degenerative processes, atrophy and free bodies in the joints, the points of difference between chronic arthritis with hypertrophy and that with atrophy being noted and the lesions compared with the clinical picture. The chronic rheumatic joint affection affecting only one or a few joints is not progressive, while that affecting a number of joints has a markedly progressive course. Arthritis with atrophy includes the chronic infectious processes and secondary rheumatic, the gonorrheal, gout, certain forms of senile arthritis and the chronic scarlatinal, typhoid or influenzal arthritis. The arthritis with hypertrophy includes the neuropathic joint affections, the tabetic and syringomyelic. The article fills 57 pages and is accompanied by 21 illustrations in the text and 15 plate skiagrams.

93. **Serotherapy in Hemophilia.**—Trembur's patient was a girl of about 13 who was known to have been a "bleeder" since the age of 5, although otherwise in good health. There was no history of anything of the kind previously in the family. The child had been in the hospital two or three times on account of excessive hemorrhages which yielded after tamponing and injection of gelatin. In February, 1909, there was menacing hemorrhage from the mouth, left ear, throat and gums and the breath had a fetid odor; temperature and urine were normal; reds 3,280,000 and whites 8,437, with 50 per cent. hemoglobin. It was noticed that the fetid odor of the breath always preceded and accompanied a severe hemorrhage. Epistaxis a day or two later required tamponing anew, although the child was lying quietly in bed. About 5 c.c. of sheep's blood serum was then injected into the left upper arm and four hours afterward the epistaxis was arrested; it recurred again two days later, but ceased as the nostrils were tamponed with gauze dipped in sheep serum. The bleeding from the gums was also arrested in the same way with local serum applications but a severe hemorrhage from both ears occurred in the night. At once 10 c.c. of sheep serum was injected into each thigh, the injections repeated about two weeks later, as there was still a tendency to slight hemorrhages, and 19 c.c. were injected into the abdomen three weeks later. The child was thus injected with a total of 106 c.c. between Feb. 22 and May 1, 1909, when she left the hospital in the best of health, having gained about 20 pounds.

Trembur regards the effect of the serum in this case as quite brilliant. A marked leucocytosis followed the injections each time, and this, by increasing the number of ferment-bearing cells, may be the explanation of the benefit from this form of serum treatment of hemophilia. Jochmann has called attention to the coagulation-promoting action of the proteolytic leucocyte-ferment. No precipitins for sheep or rabbit serum could be discovered in the child's blood during or after the serum injections. In conclusion Trembur suggests that druggists should keep standardized normal sheep serum on hand for treatment of hemorrhage. The literature on the subject of serum treatment of hemophilia is reviewed. Trembur is inclined to class the case reported as one of hereditary hemophilia although not inherited in this case—there must always be a first generation before it can be inherited, and his little patient evidently was the first to introduce the hemophilic tendency into the family.

95. **Bacteriology of Surgical Affections.**—This article from the St. Petersburg Obuchoff hospital reports the results of bacteriologic examination in 81 cases of osteomyelitis, erysipelas, septic lesions or surgical affections of various kinds commencing with a local process. Acute osteomyelitis was found to be a general infection with localization of the process in the bone marrow; it was always accompanied by bacteriemia and frequently followed by signs of metastatic sepsis. The streptococcus was found in each of the 23 cases. Erysipelas is a general infection of the organism with localization in the skin and subcutaneous tissue, with bacteriemia at first, soon subsiding. Streptococci were found in all but 2 of the 29 cases in this group, staphylococci in the others. The staphylococcus affections were distinguished by metastasis while the streptococcus were free from it, but the mortality of both was about the same.

96. **Operative Treatment of Stomach Affections.**—Kocher has resected the stomach for carcinoma in 140 cases and here discusses the outcome. Permanent recovery is known in 30 cases and he epitomizes these cases to show the points useful in prognosis. In all the tumor was at the pylorus and readily movable, although a permanent cure was realized also in a few cases in which there were extensive adhesions to neighboring organs. In 2 the tumor was at some distance from the pylorus; in none was it near the cardia. The cancer was of the cylinder-cell type in all but one case in which there was scirrhus. The most important lesson learned from these permanently cured cases, he says, is the superiority of the Kocher technic, closing the stomach, with posterior gastroduodenostomy. He reviews the indications for operative intervention, regarding retention and stagnation as calling for operative removal of the mechanical obstruction. It must be borne in mind that prolonged ulceration at the pylorus may lead to stenosis and adhesions requiring an operation even after an apparent medical cure. For cases in which it is not necessary to remove the ulcer, he advocates inferior longitudinal antrojejunostomy, isoperistaltic, with a large opening, applying Hacker's technic with a short loop. The Wölfler and Roux Y methods should be restricted to cases of anacidity and lesions forbidding union at the proper point, that is, at the greater curvature of the pyloric part. [Kocher was the recipient of the Nobel prize in medicine recently, as mentioned December 18, page 2110.—Ed.]

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

November, XXX, No. 5, pp. 543-674

98 Obstetric Operations to Aid Delivery with Undilated Os. (Die geburtshülflichen Hülfsoperationen bei uneröffnetem Muttermund.) J. Pfannenstiel.
99 *Thrombosis and Embolism in Connection with Allowing Patients to Get up early after a Gynecologic Operation or Childbirth. O. Hoehne.
100 Two Cases of Carcinoma of Fallopian Tube. S. Boxer.
101 *Vaginal Myomotomy. W. Thorn.
102 Indications for and Results of Martin's Salpingostomy. (Was leistet die Martinsche Salpingo-Stomatoplastik?) E. Kehrer.
103 *Means of Facilitating Examination of the Abdomen. (Zwei Erleichterungsmittel der kombinierten Untersuchung.) H. Sellheim.

99. **Postoperative Thrombosis.**—Hoehne writes from the Kiel gynecologic clinic to emphasize the advantages of allowing women to get up early after operations and deliveries, but he presents evidence to show that this is not able to prevent development of thrombosis. He refers to a number of published statistics which show that one parturient in every 200 develops thrombosis. Embolism occurs once in 2,000, and fatal embolism once in 4,000 lying-in cases. No thrombosis was observed in the first 100 parturients at his clinic allowed to get up early, but a fatal case of embolism of the lungs has been observed, although the number has not yet reached 1,000. He has also encountered 3 cases of thrombosis with embolism among 22 women with eclampsia during these eighteen months. Allowing the women to get up early seems to afford no definite protection against thrombosis; it only eliminates one factor, the retarding of the blood stream. The data indicate that the coagulation of the blood is a process due to the action of a ferment, and consequently the composition of the blood should be known. If the blood is seen to possess abnormal tendency to coagulation, rational prophylaxis of thrombosis must include measures to reduce the coagulating properties of the blood. The Wright method of determining the coagulating power seems simple and reliable; if abnormally high, a substance should be introduced into the circulation to check the tendency to coagulation (citric acid, leech extract, etc.). By this means we institute true, rational prophylaxis and allowing the patients to get up early would then prove an important aid. If coagulation has occurred, ligation of the thrombosed vessels should be considered and in case of embolism, the operative removal of the embolus should be attempted. He adds that as the aid of a surgeon cannot be waited for in these desperate cases, the practitioner must learn the technic and eventually undertake the operation which offers the only chance for rescue. It has been done once already with complete success.

101. **Vaginal Myomotomy.**—Thorn has enucleated the myoma by way of the vagina in 79 cases without a fatality, but he has had pulmonary embolism the sixteenth and twenty-first day in 2 out of 175 cases of vaginal hysterectomy. Another patient died of sepsis, the myoma suppurating. In this case there was also chronic nephritis. The mortality was 1.18 per cent. in 254 vaginal operations. In 9 cases complications rendered it necessary to conclude the operation with a laparotomy. In 12 other cases a second myoma was overlooked but this was remedied by a second operation. He is an advocate of hysterectomy of the myomatous uterus as this alone cures the patient with a single operation, and the myomatous uterus offers little prospects of a normal pregnancy.

103. **Improved Technic for Examining the Abdomen.**—Sellheim calls attention to the great advantage to be obtained by inducing complete relaxation of the abdominal wall, such as follows evacuation of the distended bladder. Artificial distention and spontaneous voiding of the contents of the bladder does not insure this effect. The woman must retain her urine as long as possible, and, just before the examination, it should be drawn with a catheter. This sudden termination of the tension of the walls permits a very useful relaxation. Another way to accomplish the same result is by having the woman lift the buttocks from the table on which she is lying; this effort is usually followed by relaxation of the abdominal muscles, the fatigue following the exertion relaxing the muscles.

Münchener medizinische Wochenschrift

November 9, LVI, No. 45, pp. 2297-2352

104 *Serodiagnosis of Syphilis. (Praktische Bedeutung der Wassermann-A. Neisser-Bruckschen Reaktion.) A. Jesionek and Meirowsky.
105 Bacteriologic Study of the Blood in Mastoiditis. (Ergebnisse der vergleichenden bakteriologischen Bluntuntersuchungen bei Warzenfortsatzentzündungen.) E. Leutert.
106 Post-mortem Pigment Production. (Ueber postmortale Pigmentbildung.) H. Königstein.
107 Systematic Enlargement of the Glands with Rubeola. (Systematische Lymphdrüsenschwellungen bei Röteln.) F. Hamburger and O. Schey.
108 Serodiagnosis in Tuberculosis. (Zur Frage der Komplementbindungsreaktion bei Tuberkulose.) H. Koch.
109 Latent Occurrence of Granular Form of Tubercle Bacillus. (Latentes Vorkommen der Muchschen Form des Tuberkelbazillus.) P. Wolff.
110 *Deep Roentgen Treatment. (Zur Rontgentiefentherapie mit Massendosen.) A. Köhler.
111 Splenomegaly with Cirrhosis of the Liver: Banti's Disease. (Zur Kenntnis der Bantischen Krankheit.) A. Müller.
112 Syphilis in the Tropics. (Tropensyphilis.) M. Seiffert.
113 Quinin Fatality. (Chinin-Tod.) G. Baermann.

114 The Nasal Septum Best Point for Drawing Blood for Serologic Tests. (Die Schleimhaut der Nasenscheidewand, eine besonders geeignete Stelle für die Blutentnahme zu der Wassermanschen Reaktion und zu andern serologischen O. Muck.
115 (Erzeugung einer schweren der Nasenscheidewand.) Rücker.

104. **Serodiagnosis of Syphilis.**—Jesionek reports the application of the Wassermann test to 1,060 patients, including 110 in whom syphilis could be absolutely excluded. A positive reaction was obtained only once in this last group, and this was in a moribund child. The Wassermann test is a very delicate index of syphilis; negative findings in the later stages should be regarded as favorable signs and every effort should be made in case of a positive response to transform it into the negative. In the early stages of syphilis it is of very slight value for the prognosis. A positive reaction should be regarded as merely one symptom of the disease.

110. **Safe Roentgen Exposures with Large Dosage.**—Köhler has found that the interposition of wire netting is of great importance in preventing injury from Roentgen treatment. The netting is applied close to the skin, merely a thin filter interposed, and the Roentgen tube used should have a focus from four to eight times the usual size. The skin under the wires of the netting escapes the action of the rays, and the little circles or squares of the interstices alone feel their action. Applying 10 full erythem doses, each little square of dermatitis is separated by a narrow stripe of normal tissue from the similar squares on all sides and from this network of stripes of normal tissue healing proceeds rapidly so that the whole area soon heals over. He has found netting with meshes of 2.5 mm., made of iron wire 1 mm. in diameter, best adapted for the purpose; this netting does not yield and pressure can be exerted on the skin, which has a useful effect in checking the metabolic processes during the exposures. After the exposure the part is protected with adhesive plaster and kept sterile until it heals. By this netting method twenty times the usual dose of the rays can be applied with safety, he declares. The part can be exposed from three or four directions, if necessary. A sarcoma of the femur might be given forty times the present dosage in this way by exposures on four different sides. He urges the application of this technic in inoperable cancer as the advantages of enormous dosage, brief exposures, simple technic and combination with filtering and with compression of the skin are counterbalanced only by the danger of destruction of the protected parts between the meshes by infection. This possibility can be warded off by aseptic measures.

Therapeutische Monatshefte, Berlin

November, XXIII, No. 11, pp. 567-622

116 *Prolapse Operations. F. Schauta.
117 Limitations of Local Anesthesia in Dentistry. (Grenzen der Injektionsanästhesie in der zahnärztlichen Chirurgie.) D. Frohmann.
118 *Campaign Against Cretinism in Austria. (Bekämpfung des Kretinismus in Oesterreich.) L. Sofer.
119 *Tuberculin Treatment of Pulmonary Tuberculosis. (Behandlung der Lungentuberkulose nach Robert Koch.) E. Löwenstein.

116. **Operations for Prolapse.**—Schauta states that his technic for operative correction of prolapse has been applied in 110 cases; in 59 the later history has been known for several years. A complete cure was realized in 46, that is, in nearly 78 per cent., with no interference with menstruation. In the 13 other cases there is still some trouble but always from lack of proper restoration of the pelvic floor. He gives the details of his technic anew and writes this article to call attention to the importance of suturing the bladder peritoneum as low down on the cervix as possible and taking several stitches. The lack of this was responsible for the recurrence in one case in which the uterus had twisted half way around, bringing the bladder behind instead of on top of it. The uterus is interposed between the bladder and vagina and the vagina sutured to close the incision completely; the bladder then rests on top of the uterus. The tendency to prolapse is corrected much better by this technic than by hysterectomy as this leaves the genital hiatus still gaping.

118. **Campaign Against Endemic Cretinism in Austria.**—Sofer states that there are known to be 17,286 cretins in Austria, about 64 to each 100,000 inhabitants, and 1,011 have been systematically kept under thyroid treatment, an official campaign having been instituted in 1907, as already mentioned in The Journal, after two years of preliminary study of the subject. The cretins are given the thyroid tablets to use at home, and 37 official inspecting and distributing stations have been organized for the purpose. Certain regions where there were many cretins fifty years ago seem to be free from the tendency now, while others formerly free from it now have many examples. Hochsinger regards congenital myxedema as observed in Vienna the analogue of cretinism in mountainous districts, and in both rapid improvement is liable to follow thyroid treatment. [Italy has also recently taken steps to organize a similar official campaign against cretinism.—Ed.]

119. **Tuberculin Treatment of Tuberculosis.**—Löwenstein reviews the results obtained at the Beelitz sanatorium with tuberculin treatment in 300 cases of open pulmonary tuberculosis. He comments on the discovery of the same tuberculin-neutralizing substances in the serum of patients spontaneously recovering and in those being treated with "old" tuberculin. He found them pronounced in 5 out of 35 patients examined, and the disease progressed rapidly to spontaneous recovery, in this group of 5. These findings confirm the specificity of the reaction and the radical basis for tuberculin treatment. He advocates it in every case in which the physician thinks improvement is possible. In an experience with 1,000 cases he has never observed a dangerous hemorrhage which could be ascribed to the influence of a preceding injection of tuberculin. The sole contraindications to tuberculin treatment are persisting headache, suspicious of localization of the infection in the central nervous system; nephritis, unless of tuberculous origin; diabetes; epilepsy, and pregnancy. He used to exclude also cases of mitral insufficiency but no longer regards this as necessary. In regard to dosage he prefers to commence with 0.0002 gm., being convinced that smaller doses are liable to induce anaphylaxis. The main point is to avoid introducing new toxins before the effect of the previous toxin has been thrown off. The tuberculin treatment is more qualitative than quantitative. In case of a strong general reaction with focal phenomena—increased expectoration and local reaction in the larynx—the organism must be given time for the phenomena of reaction to die down. Not until after the diseased parts of the tissue have been thrown off can the production of connective tissue proceed satisfactorily. Thus after a reaction of 102.2 F. he tranquilly waits for 14 or 18 days, and after a milder reaction for 7 or 10. During the second phase of immunization with doses over 0.1 gm. the intervals should be at least 10 days. He makes it a principle not to reduce the dose after the reaction, but increases it more or less according to the intensity of the reaction and terminates the course when the patient can stand 0.5 gm. without reaction. Koch's "bacillus emulsion" is given instead of "old" tuberculin when it is necessary to avoid much general or local reaction.

Wiener klinische Wochenschrift, Vienna

November 18, XXII, No. 46, pp. 1585-1622

120 *Roentgen Treatment of Goiter. (Zur Behandlung des Kropfes mit Röntgenstrahlen.) A. v. Eiselsberg.
121 Iodin-Adrenalin Reaction in the Urine. (Neue Reaktion im Harn.) H. Schur.
122 Respiratory Disturbances Originating in the Heart. (Zur Lehre von den kardialen Atemstörungen.) L. Hofbauer.
123 *Treatment of Paralysis by Plastic Operations on Nerves. (Fortschritte auf dem Gebiete der Chirurgie der peripheren Nerven.) H. Spitzy.
124 Recurrence [illegible] (Wiederholte Erkrankungen an [illegible] J. Widowitz.
125 Apoplexy [illegible] (Zur Kenntnis der Hämatomyelie.) C. Loebbecke.
126 Treatment of Certain Cardiac Neuroses. (Zur Erkenntnis gewisser Herzneurosen.) C. Kraus.

120. **Roentgen Treatment of Goiter.**—During the last year v. Eiselsberg has encountered 3 cases of goiter with extensive adhesions in front to the deep muscles, rendering operative measures extremely difficult. He has never observed anything of the kind in the 753 other goiters he has removed since 1901, and in these 3 cases a course of Roentgen exposures had been given before operative treatment was instituted. The goiter was of the exophthalmic type in 2 of the cases. He asserts that he has never witnessed any pronounced benefit from Roentgen treatment of goiter while he has observed

injury from it and consequently he does not recommend it to his patients. Surgical measures are giving such favorable results in exophthalmic goiter now, he says, that the decision to operate should be made earlier.

123. **Progress in Nerve Surgery.**—Spitzy reports some cases in which a plastic operation restored comparatively normal functioning after spastic paralysis. The best results are obtained with spastic paralysis of the upper extremity. The main point in treatment of flaccid paralysis by a plastic operation on the nerves is early intervention. He gives some illustrations showing the fine functional result one year after partial central implantation of the tibial into the peroneal nerves and of the median into the radial. His experience with 35 cases has suggested the indications for the technic for conditions in which the usual methods fail to relieve.

Zentralblatt für Chirurgie, Leipsic

November 13, XXXVI, No. 46, pp. 1569-1600

127 Aseptic Catgut. (Zur Catgutfrage.) F. Kuhn.

November 20, No. 47, pp. 1601-1640

128 *Differential Pressure Procedure for Inducing Local Anemia in Skull Surgery. (Versuche über künstliche Blutleere bei Schädeloperationen.) F. Sauerbruch.

128. **Negative Pressure for Hemostasis in Operations on the Skull.**—Sauerbruch reports the application of his pneumatic cabinet to aid in expelling the blood from the field of operation in brain and skull surgery. The head of the patient is outside the cabinet while negative pressure inside the cabinet, acting on the trunk, induces aspiration of the venous blood from the head which is under ordinary atmospheric pressure outside. His experiments on 62 animals showed the feasibility of the method and its prompt action. Under the reduced atmospheric pressure the thorax enlarges and the venous blood is aspirated into the right heart; the breathing proceeds regularly except that expiration is a little forced and the heart action continued apparently unmodified. The vessels throughout the body also become enlarged under the negative pressure, aspirating still more blood from the head; but simple pressure on the abdominal vessels suffices to send blood back into the head. No injurious by-effects were noted in any of the experiments. The aim is to aspirate the venous blood without modifying the arterial circulation in the head, and the amount of negative pressure is regulated to correspond; a reduction of 20 mm. mercury answered the purpose for the animals. With a reduction of 30 or 40 mm. it proved possible to aspirate the blood so as to blanch completely the central portion of the optic papilla. He warns that great caution is necessary in applying this method to man, but states that in the single clinical case in which it has been used a negative pressure of 16 or 18 mm. mercury emptied the veins for bloodless excision of a carcinoma in the orbit. He adds that a small box to fit over the trunk and chest and permit slight negative pressure would answer the desired purpose, dispensing with the complicated pneumatic cabinet.

Riforma Medica, Naples

November 8, XXV, No. 45, pp. 1233-1260

129 *Experimental Research on Retention, Localization and Fixation of Quinin in Various Organs. (Chinina nei diversi organi.) D. De Sandro.

130 *Anaphylaxis in Diagnosis of Human Tuberculosis. (L'anafilassi come mezzo diagnostico della tubercolosi umana.) V. Caraffa.

129. **Localization of Quinin in the Organs.**—De Sandro reports experimental research which shows that the quinin finally makes its way to the spleen where it remains and where it exerts the greatest pharmacologic action. When administered by the mouth, the quinin has to traverse the liver before it reaches the spleen, and consequently the action is more rapid and pronounced when the drug is injected subcutaneously or by other routes that bring it more directly to the spleen.

130. **Anaphylaxis in Diagnosis of Tuberculosis.**—Caraffa's clinical and experimental experiences have confirmed the diagnostic importance of the phenomena of anaphylaxis as determined by Rosenau and others. He induced the phenomena in sensitized rabbits both with tuberculous blood serum and effusion and with tuberculin. No reaction was obtained with serum from the non-tuberculous.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

Some Scientific Conclusions Concerning the Alcoholic Problem and its Practical Relations to Life. Papers read at the Semiannual Meeting of The American Society for the Study of Alcohol and other Drug Narcotics, at Washington, D. C., March, 1909. Sixty-first Congress, 1st Session, Senate Document No. 48. Presented by Mr. Gallinger. Paper. Pp. 179. Washington: Government Printing Office, 1909.

Visiting Nursing in the United States. Containing a Directory of the Organizations [illegible] ed Visiting Nurses, with Chapters on the Princ [illegible] and Methods of Administration of such Work. By Yssabella Waters, Henry Street (Nurses') Settlement. Cloth. Pp. 367. Price, $1.25. New York: Charities Publication Committee, 105 East Twenty-second Street.

The Prevention of Industrial Accidents. No. 1—General Pamphlet. Prepared by Frank E. Law, M.E., and W. Newell, A.B., M.E., *of the Staff of the Fidelity and Casualty Company of New York. Paper. Pp. 194, with illustrations. Price, 25 cents.* New York: Fidelity and Casualty Co., 97 Cedar St., 1909.

Pulmonary Tuberculosis and Sanatorium Treatment. By C. Muthu, M.D., M.R.C.S., L.R.C.P. Associate of King's College, London. Cloth. Pp. 201, with illustrations. Price, 3 shillings 6 pence net. London: Baillière, Tindall and Cox, 8 Henrietta Street, Covent Garden, *London, 1910.*

The Prevention and Treatment of Abortion. By Frederick J. J. Taussig, A.B., M.D., Lecturer in Gynecology, Medical Department, Washington University. Cloth. Pp. 179, with 59 illustrations. Price, $2. St. Louis: C. V. Mosby Co., 1910.

The Origin and Prevalence of Typhoid Fever in the District of Columbia. Report No. 3, 1908. By M. J. Rosenau, L. L. Lumsden and Joseph H. Kastle. Paper. Pp. 160. Washington: Government Printing Office, 1909.

The Physician's Pocket Account Book. By J. J. Taylor, M.D. Flexible leather, 24 pages of practical instructions for physicians, 216 pages of accounts. Price, $1. Philadelphia: The Medical Council, 4105 Walnut Street.

A Practical Treatise on Ophthalmology. By L. Webster Fox, M.D., LL.D., Professor of Ophthalmology in the Medico-Chirurgical College. Cloth. Pp. 807, with illustrations. Price, $4. New York: D. Appleton & Co., 1910.

Mazdaznan Encyclopedia of Dietetics and Home Cook Book. Cooked and Uncooked Foods. What to Eat and How to Eat it. Fifth Edition. Price, $1.25. Pp. 230. Chicago: Mazdaznan Associates of God, 1909.

St. Luke's Hospital Medical and Surgical Reports. Edited for the Medical Board by Austin W. Hollis, M.D. Volume I, for 1908 and 1909. Paper. Pp. 225. New York City.

Report of the Surgeon-General U. S. Army to the Secretary of War. 1909. Washington Government Printing Office. Paper. Pp. 215.

New Patents

Patents of interest to physicians recently granted:

935094.	Closure for atomizer-bottles or the like. A. and T. A. De Vilbiss, Toledo, Ohio.
935124.	Spray-nozzle. P. A. Myers, Ashland, Ohio.
935542.	Treating sodium peroxid. D. E. Parker, Niagara Falls, N. Y.
935227.	Medical irrigator. H. H. Pfeifer and F. M. Towles, Indianapolis.
935056.	Stretcher. F. C. Rheubottom and R. B. Rayner, Union City, Mich.
935272.	Anatomical developing and adjusting machine. D. W. Riesland, Duluth, Minn.
935418.	Producing magnesium carbonate. G. Sisson, Newcastle-on-Tyne, England.
935832.	Ventilator and medicament or perfume container for hats. H. D. Barnes, [illegible]
935777.	Truss. W. W. [illegible]
935746.	Massage vibrato [illegible], Chicago.
936107.	Mechanism for elevating invalids. R. L. Floyd, Staunton, Va.
936131.	Dental or surgical chair. G. Holtz, Gouldsboro, Pa.
935796.	Production of magnesium. F. von Kugelgen, Holcomb Rock, Va., and G. O. Seward, East Orange, N. J.
935858.	Apparatus for carbonating and dispensing beverages. L. C. Paris and T. Millward, San Francisco.
935815.	Preparing zinc formaldehyde sulfoxylate, F. Rademacher, Prague-Karolinenthal, Austria-Hungary.
936062.	Closure for bottles. W. R. Warner, Vergennes, Vt.
936205.	Hypodermic syringe. P. B. Woodruff, Springfield, Tenn.
936846.	Window tent. J. G. Allen, Peoria, Ill.
936752.	Abdominal support. J. S. Allred, Troy, Ala.
936434.	Bust-developer. J. G. Eganhouse, Houston, Tex.
936537.	Spraying nozzle. A. B. Hull, Gasport, N. Y.
937029.	Means for hypodermic medication. B. G. Strong, Reading, Mich.
936499.	Aseptic deflector lamp. G. C. Werner, Brooklyn.
937354.	Apparatus for setting the fractured bones of the leg. W. Amos, Providence, R. I.
937292.	Vaginal syringe. C. S. Eichholtz, Los Angeles, Cal.
937596.	Headache appliance. C. Gray and O. B. Hitchcock, Horton, Kan.
937210.	Preparing potable waters. J. T. Harris, New York.
937311.	Vaginal syringe. C. P. Leyner, Boston.
937327.	Pasteurizer. L. S. Pfouts, Canton, Ohio.
937478.	Material for surgical splints. S. C. Sims, Sterling, Ill.
937480.	Invalid's table. F. A. Smith and D. L. O'Brien, San Francisco.

The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 2 CHICAGO, ILLINOIS JANUARY 8, 1910

Original Articles

MELANOMAS AND SOME TYPES OF SARCOMA OF THE SKIN*

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The sarcoma group of skin diseases is of exceeding interest to the dermatologist on account of the frequency in which the skin is involved even where the tumors are primary in some other organ, and also from the fact that the type best known to dermatologists, the idiopathic hemorrhagic sarcoma of Kaposi, seems to be independent of any primary growth and apparently originates from the vascular tissue of the extremities. Perhaps the one which carries the greatest interest of all, and certainly the one which has given rise to the most active controversy regarding its nature, is the so-called melanoma—a name which does not commit one to any positive view regarding its genesis. Although it sometimes originates from pigmented moles and even those which are non-pigmented, it also occurs independently of any visible change in the skin, so that perhaps the importance of these pigmented moles as potential melanomas has been somewhat exaggerated. The majority of people possess one or more of these congenital defects, but only few of them become malignant.

Before entering into the discussion of the various views on this fascinating subject I shall cite briefly two melanomas of the foot which have recently come under my observation. In both there was an absence of any history of a mole, the tumor having been preceded by a pigment spot which persisted a variable time before actual growth was noticed.

CASE 1.—A woman aged 54, a native of Germany, stated that for several years she had had a pigment spot on the inner border of her left foot near the heel. It had occasioned her no inconvenience until two years before examination, when she noticed a gradual increase in size and volume. This was slow for about a year and a half, but during the past six months the growth had been augmenting more rapidly.

Macroscopic Examination.—At the time she presented herself the lesion was about 2 inches by 1 in diameter and consisted of an irregular tumor encroaching partly on the sole of the foot. It was unevenly elevated in the center and at the periphery was level with or rose slightly above the surrounding skin. In color it shaded from dark brown to deep black, and it was covered by thick adherent scales except in one area where a dry depression furrowed the surface. This was also the blackest part of the tumor and may have been the starting point. There were no satellite metastases, no lymph node enlargement and no local pain. The patient was well-nourished and said that her general health had suffered no change.

Microscopic Examination.—The tissue (Fig. 1) presented an enormously hypertrophied horny layer containing lakes of free pigment and chromatophores in groups and isolated. The rete was irregularly thickened and undulating; the basal layer in places was preserved and in others obliterated by the encroachment of the growth. In the interspinal spaces and in lacunæ hollowed out by them were to be seen one or more chromatophores. The tumor itself occupied the upper two-thirds of the corium, giving the appearance of a growth of the papillary bodies. The outlines of the latter in some areas were well preserved; they were enlarged and club-shaped and here and there the epidermis was lifted up from them. The growth in these places had a columnar arrangement at right angles to the epidermis. In portions it was so deeply pigmented that neither cells nor intercellular substance could be made out. In areas less dense, the cells had a pale vesicular nucleus, some two, and rather small cell bodies with moderately long processes at either end. Between them was a delicate fibrillary substance. The surrounding connective tissue was markedly sclerosed and divided the growth by band-like partitions. In the tumor area the vascular development was poor, but around it were found a number of dilated vessels with an infiltration of round and pigment cells and free pigment.

CASE 2.—The other case also occurred in a woman, who gave a very indefinite history. She was about 45 years old and when first seen had a large lobulated mass on the inner side of the foot which ulcerated and discharged a bluish-black fluid. Numerous bluish-black metastases were present on the leg and thigh and the inguinal lymph nodes were enlarged. The patient died from cachexia and internal metastases. The initial tumor was from a pigment spot which had appeared several years before. Examination of a very small metastasis from the thigh showed the lesion to be made up of a collection of deeply pigmented branched and round cells. They were filled with coarse granules and clumps of pigment (Fig. 2). The cells were especially numerous about the vessels, the endothelium of which was also pigmented. In a larger secondary growth the pigmented cells formed a network which occupied the middle and lower thirds of the corium. In neither specimen was there any inflammatory reaction.

It is not always possible after growth has taken place to determine whether the melanoma originated from a congenital malformation or not. In the above cases no connection with a nevus could be established, and with the history of a pigment spot developing in middle age the antecedent condition was probably the malignant lentigo of Hutchinson. This begins as a pigment spot late in life on the face, more frequently the eyelid, and the extremities, and after some years takes on growth.

Owing to the assumption of an etiologic connection between pigmented growths and nevi the nature of melanomas is still one of the disputed questions in tumor pathology, and until the histogenesis of nevi is settled the controversy will probably be left open. Following the work of von Deméville[1] in 1880 and von

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* Read in the Section on Dermatology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Von Deméville: Virchow's Arch. f. path. Anat., 1880, lxxxi, 333.

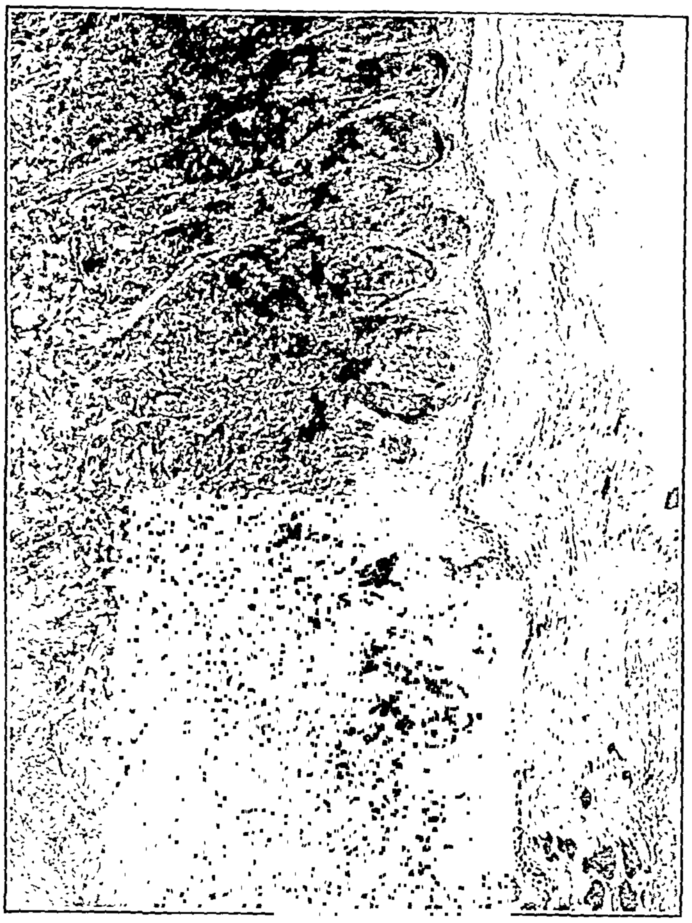

Fig. 1.—Melanoma of the foot. Zeiss Planar 20 mm. Showing extensive pigmentation of the tumor and epidermis. The growth is situated in the upper two-thirds of the corium and is made up of spindle cells, the majority of which are densely pigmented, and a fibrous stroma.

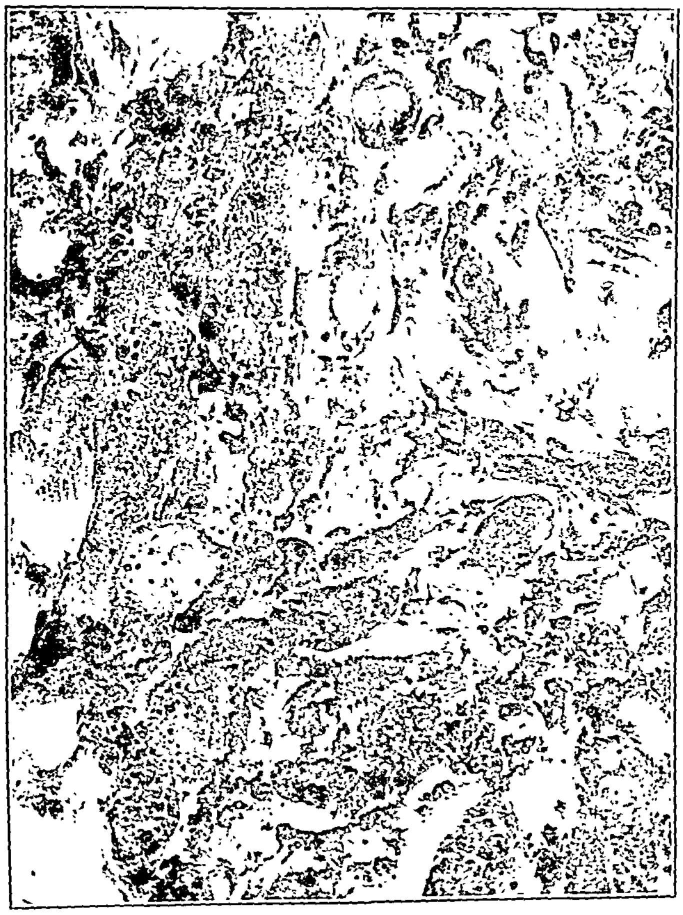

Fig. 2.—Melanoma metastasis. Zeiss 8 mm., C. O. 4. Showing chromatophores in a secondary nodule of the thigh; large irregular, round and spindle cells with fine and coarse granules of melanin.

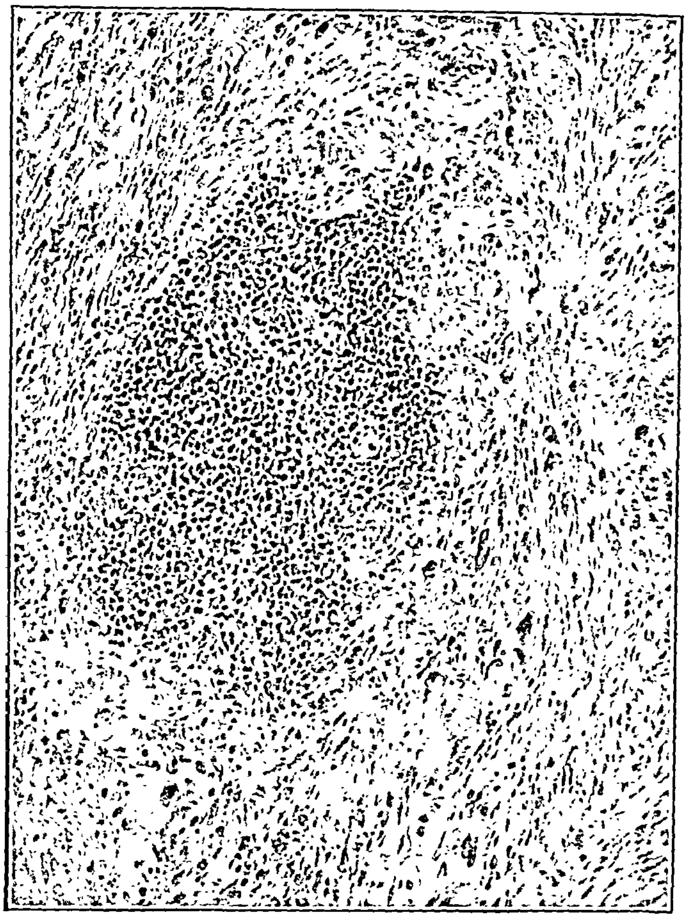

Fig. 3.—Melanotic whitlow. Zeiss 8 mm., C. O. 4. Showing bundles of spindle cells cut in various planes, large chromatophores and a central focus of lymphocytes. Pigment is present in the large cells and in variable amount in the smaller ones.

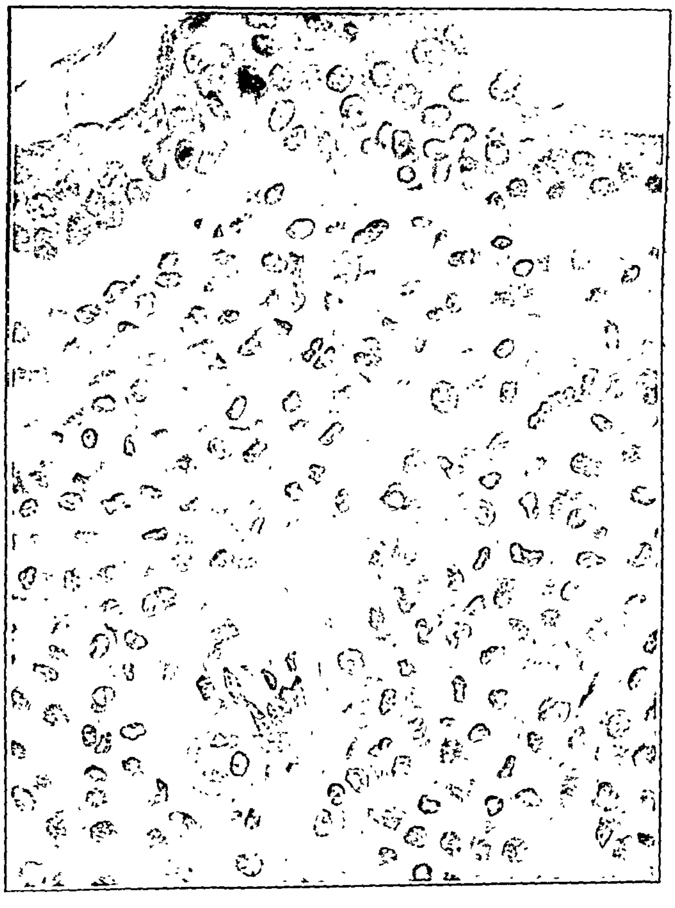

Fig. 4.—Papillary nevus. Zeiss 3 mm., N.A. 1.40, C. O. 4. Showing the "nevus cells" with vesicular nucleus, some having two. The cell bodies are clear, more or less rounded and have a sharp outline. In places they are closely apposed and form a mosaic; in others they are separated by fibers from the connective tissue stroma.

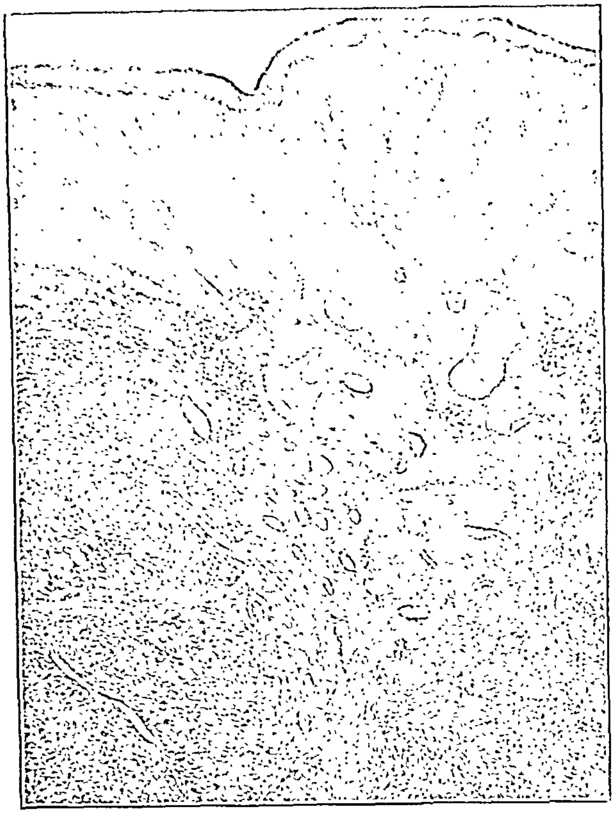

Fig. 5.—Idiopathic multiple hemorrhagic sarcoma. Zeiss Planar 20 mm. Showing the growth in the corium made up of spindle cells and numerous capillaries and spaces filled with blood.

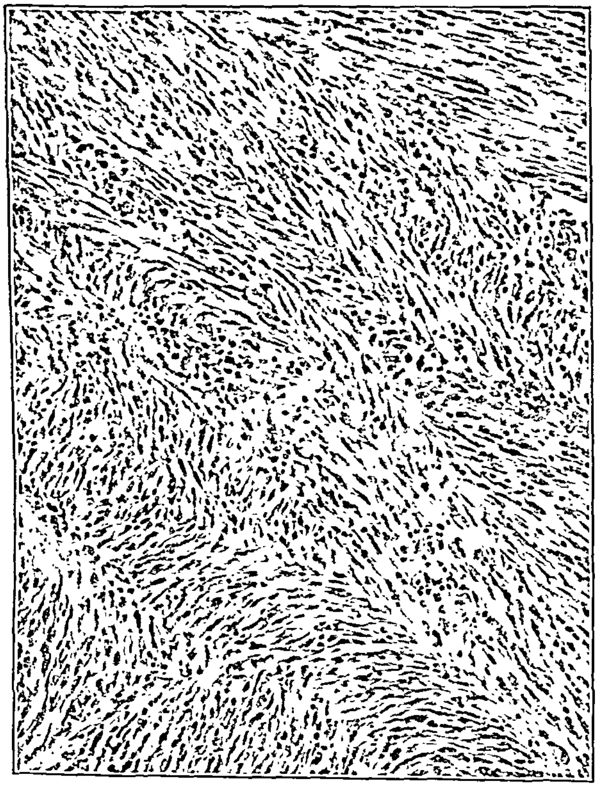

Fig. 6.—Idiopathic multiple hemorrhagic sarcoma. Zeiss 8 mm. C. O. 4. Showing the bundles of spindle cells cut in various planes and an intercellular substance.

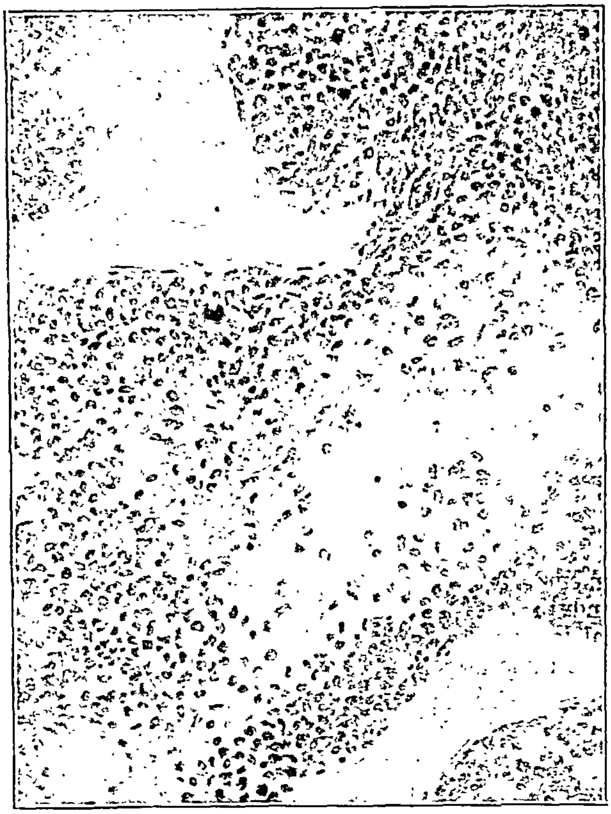

Fig. 7.—Angiosarcoma. Zeiss 8 mm., C. O. 4. Showing large cavernous blood channels lined by endothelium or sarcoma cells and the intervening tumor tissue of round and polygonal cells, and a supporting reticulum.

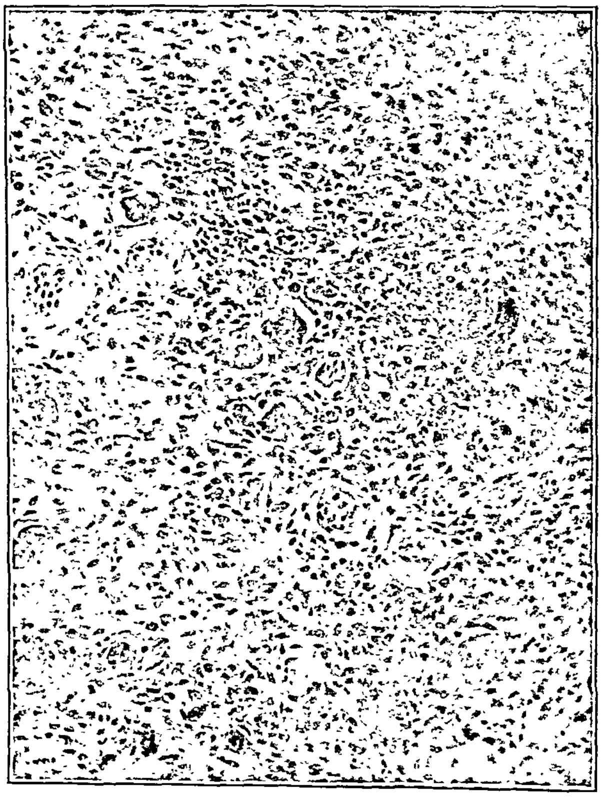

Fig. 8.—Myeloma of the finger. Zeiss 8 mm., C. O. 4. Showing the giant cells, surrounding round and small spindle cells and the delicate reticulum.

Recklinghausen[2] in 1882 these malformations were regarded as endothelial in origin; and to harmonize, all melanomas were placed in the sarcoma group. In 1893, however, Unna[3] promulgated his views on the epithelial nature of moles, and for the sake of consistency melanomas were then placed in the carcinoma group by the adherents of Unna's school. He maintained that nevus cells were true epithelial cells which had been snared off and had undergone a metaplasia from prickle cells to "soft plastic ameba-like clumps without prickles or fibrillation." Hodara[4] claimed to have demonstrated in snared-off cells the degeneration which led to the disappearance of the epithelial prickles, and, more recently, Zieler, in his experimental work at the Breslau Clinic, produced changes in the skin which he considered as further proof of the epithelial origin of nevi. He treated a healthy portion of skin in a patient with xeroderma pigmentosum for twenty minutes with Kromayer's quartz lamp and produced a marked reaction with necrosis of the papillary bodies. After several weeks a pigmented scar ensued, on examination of which he found pigment in the cutis and epidermis and in the basal layer pale cells of epithelial character and groups of the same at the periphery of and in the scar tissue. These had the arrangement and form of typical nevus cells. The question which arises is if this was not in reality an experimental epithelioma. This would not be an unnatural supposition with a predisposed skin like that in xeroderma pigmentosum.

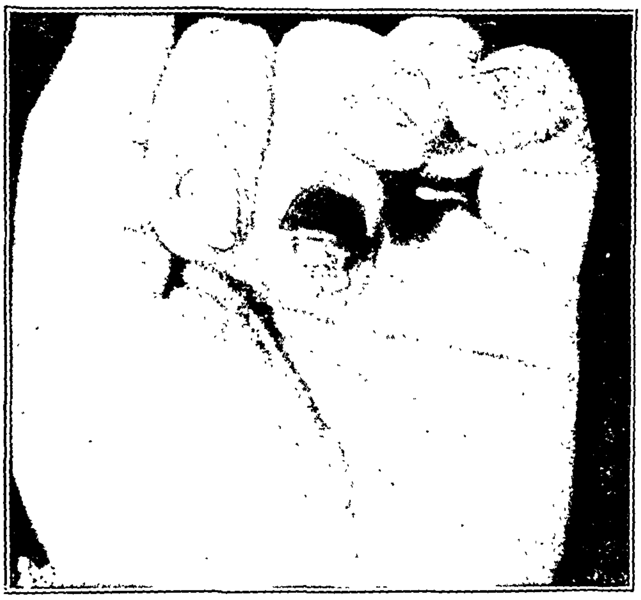

Fig. 9.—Myeloma of the finger. Showing tumefaction of the terminal phalanx, discoloration of the nail and fungating growth beneath.

On the side of the mesodermal origin of moles are ranged the investigators who favor the proliferation of lymphatic endothelium or vascular endothelium and perithelium or both. Virchow and others believed them to be derived from young connective-tissue cells; and, according to Soldan,[6] they had their origin in the vessels following the sheaths of nerve fibers. Borst[7] and Kreibich regard nevi as melanofibromata and Ribbert[8] distinct cell type of connective tissue origin, atophore. He holds that nevi consist of two kinds of cells—alveoli of polymorphous cells and fully developed chromatophores—both genetically identical, the round ones being sharply less differentiated. Others incline toward a dual genesis. Thus Wilfred Fox[9] believes that the majority of nevi with regular columns of cells are derived from the epidermis, while a rare variety with a less uniform distribution arises from the mesoderm. Adami,[10] while favoring the connective-tissue origin of chromatophores, admits that they may also be derived from the epidermis, but argues against a purely epithelial genesis that "pigmented tumors of pure epitheliomatous type are unknown." While I agree in the main with Adami, it must not be overlooked that pigmented rodent ulcers described by Johnston[11] and the pigmented carcinoma reported by Gilchrist[12] were epithelial.

From my own studies of this perplexing subject I am in accord with the view that attributes a twofold origin to nevi. In some, the characters of the cells conform more closely with those of the epidermis and can hardly be distingushed from prolongations of the latter which enter the mole. In others, there appears to be another variety, consisting of cells with vesicular nuclei, with faint or no tinctorial properties and a well-defined border (Fig. 3). Their shape in general is round, but this may be modified by mutual pressure. Fibers from the connective tissue may be seen between individual cells and groups of them.

The sites of predilection for melanomas are the eye and the skin of the face and extremities, especially the foot. While nevi and pigment spots form a predisposing base for the development of melanomas, the latter also occur independently of them in the normal skin or other organs. Regions normally rich in chromatophores show a certain proneness, as the anus and genitalia.

Ribbert and Borst look on the primary occurrence of melanomas elsewhere than in the skin, mucous membranes or choroid with skepticism. This seems hardly justifiable in view of the number of authentic reports. Duval[13] reported a melanoma of the gall bladder, Rössle of the ovary and Frankel of the thyroid. Orth[14] published a report of a primary melanosarcoma of the adrenal and Martini[15] three cases from the axillary and cervical lymph nodes. In his report he incorporates accounts of similar primary lymph node tumors recorded by Cena, Birch-Hirschfeld, Putiate, Berger and Marchand, and seeks the explanation for this location in the common mesodermal origin of the lymph ganglia and corium and the aberration of chromatophores during fetal life into the stroma of certain nodes, which cells after a time give rise to tumor formation. In connection with the central nervous system there are also a number of instances. Virchow,[16] in 1859, reported a case of the arachnoid, all the other organs being free. Stoerck's case showed involvement of the pia and spinal cord, without other findings. Sternberg's case was a primary growth of the brain, as was also Minelli's. Hirschberg[17] reported one of the lower dorsal and upper lumbar segments of the spinal cord with metastases into the neighboring soft tissues; nowhere else was

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klinghausen: Ueber die multiplen Fibrome der Haut,
l. klin. Wchnschr., 1893, xxx, 13.
onatsh. f. prakt. Dermat., 1897, xxv, 205.
. f. klin. Chir., 1899, lix, 261.
ehre von den Geschwülsten, 1902, p. 117.
. z. path. Anat. u. z. allg. Path. (Ziegler's),
wulstlehre, 1904, p. 277.

Fig. 2.—Melano
chromatophores in a
round and spindle ce

9. Fox: Brit. Jour. Dermat., 1906, xviii, 15.
10. Adami: Principles of Pathology, i, 764.
11. Johnston: Jour. Cutan. Dis., 1905, xxiii, 1.
12. Gilchrist: Jour. Cutan. Dis., 1899, xvii, 117.
13. Duval: Montreal Med. Jour., 1908, xxxvii, 270.
14. Orth: Berl. klin. Wchnschr., 1906, xxvi.
15. *Martini: Ztschr. f. Krebsforsch.*, 1907-8, vi, 200.
16. Virchow: Virchow's Arch. f. path. Anat., xvi, 180.
17. Hirschberg: Virchow's Arch. f. path. Anat., clxxxvi, 229.

there a trace of melanotic pigmentation. As Hirschberg points out, physiologic chromatophores with iron-free pigment are present in the central nervous system, and there is also an embryologic relationship between those of the skin, choroid and leptomeninges in that they have a common matrix in their development. Furthermore, from the observations of Ribbert,[18] Kölliker, and others, chromatophores are present in the adventitia, especially of the pial arteries which pass into the central nervous system, and these may undergo primary proliferation.

Melanomas developing on moles may give rise to marked local changes, or, more rarely, to none at all, the first indication of malignancy being metastasis. Or, the mole may ulcerate and partially heal or take on slow growth; meanwhile, the neighboring lymph nodes enlarge and, if ulceration over them takes place, discharge an inky black fluid, the patient dying from recurrent hemorrhages or from ulceration of some large vessel in the neighborhood. Again, the mole may increase in size and color and produce lymph node and visceral metastases, death ensuing from cachexia or interference with some vital organ. In the benign type, the so-called melanotic "rodent ulcer," the node becomes locally malignant, but no metastasis takes place. In Galloway's[19] and Crocker's[20] cases of melanoma of the foot the tumor began as a "blister" which ruptured and healed several times and then developed into a growth.

Melanotic whitlow, which, according to Hutchinson, is due to injury, is seen at the base of one of the finger- or toe-nails, has the features of an onychia with pigmentation, and soon develops into a fungating tumor which is as malignant as the other forms. Figure 4 shows a section of such a growth, in which the sarcoma element was very evident. It was made up of fasciculi of connective-tissue cells with intercellular fibrillæ. The cells varied in size, were spindle or oval in shape and had pale-staining nuclei. Some were pigmented, others not. In outlying areas there was also an alveolar arrangement of round and polymorphous cells of large size with a sparing amount of intercellular substance. Pigment in this portion was lacking. The tumor was very vascular and in the lumina of a number of vessels a growth was noted. A number of multinucleated cells were also seen. A round-celled infiltration was quite marked, a focus being present in the center of the illustration.

The rule is for melanomas to form more metastases than do any other tumors, dissemination taking place both by the lymph and the blood stream, so that the regional lymphatics and all the viscera, intestines and serous membranes may show secondary involvement. This tendency to metastasize is due to growth near the vessels and into them, so that the cells are carried through the entire vascular system. In advanced cases the leucocytes and the endothelial cells lining the vessels take up pigment so that the tissues in general may be tinged and there may be in addition melanemia and melanuria. Not all tumors are equally malignant and dissemination may be delayed for a long period. Just gives the average duration as three years, but death within a year has followed, and as an outside limit may be mentioned Dobbertin's case of brain tumor which appeared ten years after a primary tumor of the eye. Whitfield[21] divides melanomas into two classes, the common highly malignant type with early and general dissemination and the slow-growing variety with little tendency to metastasis. Rarely the regional lymph nodes escape even in the malignant type, as in Gilchrist's[22] case in which dissemination took place by the blood stream only, and hundreds of metastases were present without involvement of the lymphatics.

The color of the metastases bears no relation to that of the original tumor, as the latter may be deeply pigmented and the daughter cells colorless, and conversely, with a slightly pigmented growth the metastases may show all the shades from a light brown to an intense blue-black.

Microscopically, melanomas show a varying picture, not only in different growths but in different portions of the same tumor. There may be an alveolar arrangement of large or small cells in one part and bundles of spindle or branched and stellate cells in another. The amount of pigment is also a varying factor; in some areas it may be so dense as to obscure the nucleus and cell body and in others it may be entirely lacking. In spite of this polymorphism, Ribbert[23] believes that all of the cells originate from one and the same type—namely, the chromatophore—by reason of which he designated these tumors "chromatophoromata." The round unpigmented, indifferent elements represent an embryonal stage of the chromatophore and are found in the most active infiltrating parts of the tumor, while the fully developed chromatophores represent the adult and less active stage. The large, round, densely pigmented cells he regards as degenerated forms, which, like dead amebas, have become rounded, the diffuse pigmentation being the final stage in the life history of the cell. The small, round polymorphous cells are collected into alveoli, many of which have arisen by the growth of the cells into the lymph and blood vessels and filling and distending them. The spindle cells are collected into bundles, which in the main run parallel to the blood vessels. Ribbert found that in nevi the pigmented cells were usually of spindle shape and had a tendency to arrange themselves about the vessels. They may, however, also be pigment-free, although the pigmented ones are the characteristic element, and it is most likely that melanomas arising from nevi do so from the fully developed chromatophore rather than from the cell clusters, though these can not be ruled out. When they do arise from pre-existing developmental anomalies, he adds, it is probable that in them the chromatophores were more numerous from the beginning and were undergoing a slow but continuous increase.

Borst and others also pointed out that the most pigmented portions of melanosarcomas were those closely related to the vessels. Lubarsch and Rössle explain this by the fact that the cells lying nearest the vessels receive more nourishment; hence develop and pass through their evolution more rapidly. The intensity of pigmentation then does not point to its hematogenous origin, but to more favorable conditions for development.

Melanin consists of fine amorphous granules varying from golden brown to inky black. It is soluble in ether, alkalies and strong acids and is bleached by chlorin, peroxid of hydrogen and potassium permanganate. Being the final stage of the cell, its increased production leads to death of the cell, and nucleus and protoplasm may disappear, leaving only heaps of pigment. Von Rindfleisch is of the opinon that pigment accumulation leads to an irritative conditon of the cell and proliferation, resulting in daughter cells with the inherent property in a certain stage of development to form pigment again.

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[18] Ribbert: Cited by Hirschberg, Virchow's Arch. f. path. Anat., 1906, clxxxvi, 229.

[19] Galloway: Brit. Med. Jour., 1897, p. 873.

[20] Crocker: Diseases of the Skin, Edition 3, p. 1020

[21] Whitfield: Brit. Jour. Dermat., 1900, xii, 274.

[22] Gilchrist: Jour. Cutan. Dis., 1899, xvii, 122.

[23] Ribbert: Geschwulstlehre, p. 255.

In the discussion of the origin of melanin the points at issue are whether it originates in the cutis or epidermis or in both, and whether or not it is derived from the blood. Kölliker[24] believed that it was formed in the cutis and through the leucocytes or connective tissue cells was transported to the epidermis; Jarisch and Post,[25] that it was of epidermic origin and streamed into the cutis direct or was carried there by wandering cells. Ehrmann, [26] Borst, and Neumann were of the opinion that it was derived from the hemoglobin of the blood. Ehrmann[26] attributed to a specific cell in the cutis, the melanoblast, the function of pigment formation, and believed that this cell extended into the epidermis and deposited pigment there. This cell is identical with the chromatophore of Ribbert. The hematogenous origin of melanin, however, is not supported by chemical examination, as it contains sulphur and not iron. Various investigators, among them Martini, found iron only in those portions where hemorrhage had taken place, so that the presence of iron in melanotic areas is generally looked on as a contamination with blood.

Rössle,[27] in studying protozoa under pathologic conditions, found that certain nuclear changes took place—namely, hypertrophy and hyperchromatosis—with discharge of a portion of the nuclear substance into the plasma and its conversion into brown or black pigment. Turning his attention to melanomas, he came to the conclusion that similar changes took place in young cells—namely, an overproduction of nuclear substance with passage into the protoplasm and metamorphosis into pigment. He demonstrated that the chemical reaction in both was the same—namely, iron-free.

Staffel[28] confirmed the studies of Rössle and applied them to various pigmented conditions in the skin. He concludes that in human skin pigmentation is the result of cellular activity, is formed by the epidermic as well as plasma and mast cells, and that the mode of formation is the same in all—i. e., an accumulation of nuclear substance and its conversion into pigment.

In further support of the nucleolar theory are the experiments of Meirowsky.[29] He produced pigmentation with the Finsen light and found that pigment was produced only in the epidermis and not in the cutis. He was able here to follow the same cycle of development as his predecessors had reported—viz., accumulation, discharge and metamorphosis of nucleolar matter. Pigment being a portion of the nucleus, he suggests that this point may help to clear up the question of the inheritance of pigmentation, the nuclei transmitting inherent properties and tendencies to the offspring.

Adami[30] argues that identical nuclear changes having been described in connection with so many cell deposits, each individual cell deposit instead of being a direct development from the plasmasomes or chromidia is due to the interaction between the discharged nuclear matter and certain cytoplasmic substances. He also suggests that instead of being a progressive acquirement, marked pigmentation indicates a deficiency in the disintegrative mechanism of the cell, the normal final stage of colorless chromogen formation not being reached. From the investigations of von Fürth[31] it seems that melanin is developed by the action of intracellular oxidases or enzymes on the aromatic or chromogen group of the protein molecule.

The true factor in the causation of melanomas, as in all tumors, is still unknown, and the extent to which increased vascularity due to irritation or inflammatory changes plays a rôle still undecided. The majority of cases begin after the third decade, chiefly in the fourth and fifth. Bland-Sutton mentions one in a girl of 13. It would seem that melanomas of the foot occur more frequently in women than in men. These tumors appear to have a wider distribution in the lower animal kingdom, where they are not so malignant as in man. They are frequent in horses, and also occur in cows, having the same tendency to metastasis, but with a more benign course.

Among the other pigmented growths of the skin is Kaposi's idiopathic multiple hemorrhagic sarcoma, differing from the melanoma in having a multiple and usually symmetrical origin, a slower course and little tendency to metastasize. Its color is due to blood pigment and not to melanin. As shown in Figure 5, the tumors are situated in the corium, are very vascular, and consist of capillaries and blood spaces lined by endothelium or tumor cells and a connective tissue growth. The blood spaces are very delicate and rupture easily, the hemorrhagic extravasation giving rise to the pigment present in these tumors. Under higher magnification (Fig. 6) the growth is seen to be made up of spindle cells and an intercellular stroma collected into bundles which on section appear in various planes and give rise to an appearance of streaming or radiation from different centers.

I have previously called attention to the fact that single brownish-red tumors are met which present all the histologic features of Kaposi's angiosarcoma, remain localized and show no recurrence after removal. On the other hand, we find tumors originating from the endothelium or perithelium of blood vessels in which the cells are not spindle-shaped as in the Kaposi type, but round or polygonal (Fig. 7), with deep-staining nuclei and a slight intercellular substance between. The large cavernous blood channels are lined by endothelium or tumor cells and, owing to the delicacy of the walls, hemorrhage readily occurs into the tissue.

With the melanoma at one pole of the sarcoma group representing the highest type of malignancy, we have the giant-celled sarcoma or myeloma at the opposite end as the least malignant. It is still a question whether it properly belongs to this group, many pathologists being inclined to place it in a class by itself, for this reason denominating it "giant-celled myeloma" instead of a giant-celled sarcoma. It is made up of tissue similar to the red marrow of young bones and occurs in the medulla and in the periosteum, as in the lower jaw, where it is known as epulis. In the long bones the site of predilection is near the epiphyses, almost always beginning in the medulla and growing out to the periosteum. These tumors may attain the size of a head and undergo cystic softening. The vascular development is very marked, and the hemorrhage may be so great that the tumor regresses and is no longer thought a growth. Such cases have been called "bone aneurisms." These tumors are not very malignant; they grow slowly, recur sometimes, but do not as a rule metastasize.

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[24] Kölliker: Ztschr. f. wissensch. Zoöl., 1887, xlv.
[25] Post: Virchow's Arch. f. path. Anat., 1894, cxxxv, 479.
[26] Ehrmann: Monatsh. f. prakt. Dermat., 1907, xliv, 166.
[27] Rössle: Ztschr. f. Krebsforsch., 1904, ii, 291.
[28] Staffel: Verhandl. d. deutsch. path. Gesellsch., 1908, xi, 136.
[29] Meirowsky: Monatsh. f. prakt. Dermat., 1906, xlii, 541: xliii, 155; 1907, xliv: 166.
[30] Adami: Principles of Pathology, i, 765.
[31] Von Fürth: Centralbl. f. Path., 1904, xv, 617.

CASE 3.—The case under consideration, kindly referred to me by Dr. Dougal Bissell of this city, had a more unusual location, viz., in the terminal phalanx of the left middle finger. The patient was a woman of 33.

History.—Ten years before examination, the patient had had a chancre of the lip for which she was treated over a period of two and a half years. She was married the first time at twenty, and the second time six years before she came under observation. She had never been pregnant. Eight years before examination she was operated on for tubal disease, a portion of one ovary being left. She had menstruated normally since. Three years before she came under observation she had a "sore" on her elbow. Eight months before she presented herself to me she noticed a swelling of the terminal phalanx of the left middle finger. Later the nail became discolored and tender on pressure. After this a dark red infiltration appeared beneath the nail and projected some distance beyond the tip of the finger. It subsequently ulcerated and was followed by a fungating condition (Fig. 9). On palpation of the terminal phalanx, marked crepitation was evident, probably due to the disintegration of the bone.

On account of the history of syphilis, the patient was treated energetically with antisyphilitic remedies without avail. A biopsy was then made to confirm the clinical diagnosis of myeloma. She was given numerous x-ray exposures, but as they were unproductive of result, she finally yielded to operation. Amputation of the terminal phalanx was made by Dr. Bissell and the tissue sent to me for further examination.

Examination of Specimen.—On section, the entire phalanx showed soft cancellous tissue with a few spicules of bone and a central cavity. Microscopically, (Fig. 8), the typical feature was the giant cell, which has the characteristic structure of myeloplaques. The rest of the tumor was made up of spindle and round cells arranged about the giant cells or blood vessels, which were very numerous in some areas. They varied from small capillaries to large blood spaces and hemorrhage was marked in places. The supporting stroma consisted of an intercellular reticulum of variable amount. The giant cells were more or less grouped, had a finely granular protoplasm and many nuclei, oval or round, situated throughout the cell body. Their number was so great sometimes that they filled the entire cell. Occasionally tumors were found in which the nuclei had a peripheral arrangement as in the Langhans cell.

Owing to the history of lues which this patient gave, it is interesting in this connection to cite the case of syphilitic dactylitis with recurrence after operation reported by Nicolas, Durand and Moutot.[32] The patient was a man with a fusiform tumefaction of the left index finger, which was diagnosed on clinical and histologic examination as a myeloma of the synovial sheath. An operation was performed, but a month afterward the patient returned with a tumor the size of a pigeon's egg, which was then diagnosed as a rapidly infiltrating sarcomatous recurrence. An antecedent history of syphilis, however, and a closer study of the microscopic features of the case, suggested to one of the authors its possible luetic nature. The patient was accordingly most energetically treated on this supposition with injections and iodids and in four weeks was well.

Tertiary lesions of syphilis present under the microscope such a variety of phases that they may simulate a vast number of pathologic conditions. Giant cells conforming more or less to the myeloid type are often present in great numbers, but they do not possess so many nuclei, and on closer examination their vascular relationship can usually be established. I believe that the majority, if not all, giant cells in syphilis are the result of endothelial proliferation and vascular occlusion. As other differential points may be mentioned the endarteritis and periarteritis of the vessels in lues, and also that the spindle cells with the reticulum met with in myeloma are not a feature of syphilis.

80 West Fortieth Street.

ABSTRACT OF DISCUSSION

DR. D. W. MONTGOMERY, San Francisco: In my opinion Dr. Fordyce has acted wisely in speaking of the melanomas as sarcomas, without further comment; for although some of the melanomata look like epitheliomata because of their highly developed alveolar structure, yet they are, almost without exception, sarcomas. A pigmented epithelioma is a very rare form of tumor.

DR. JAY F. SCHAMBERG, Philadelphia: One of the photomicrographs shown by Dr. Fordyce recalls to me a picture in my possession which appeared some time ago in the *Journal of Cutaneous Diseases*, and which represented an epithelioma developing on a papillary nevus on the forehead of a young man which had been injured by an umbrella ferule. The nevus had been present since birth and only underwent malignant change subsequent to the injury. The growth appeared to have its origin from an off-shoot of the hair follicle so that it probably belongs to the type of epithelioma designated trichoepithelioma. Large masses of epithelial cells were seen proliferating in the lymph spaces.

DR. M. B. HARTZELL, Philadelphia: We have learned in recent years that many of the cases of malignant neoplasms formerly called alveolar pigmented sarcoma are not sarcomata at all, but pigmented epitheliomata; and it seems to me that we ought to be somewhat cautious about accepting as sarcoma some of these lesions of the skin showing a pigmented alveolar structure. Most of these are epitheliomata.

DR. WILLIAM S. GOTTHEIL, New York City: I have had two of these cases of pigmented sarcoma and in both of them, in spite of early and repeated operations, general sarcomatosis of the skin and internal organs led to a fatal issue, in one case within six months; in the other within nine months.

DR. J. A. FORDYCE, New York: I intended to use the term melanoma as a non-committal one, including melanosarcoma and melanoepithelioma. I think it is yet undecided where these tumors originate. I do not believe that the view expressed by Dr. Hartzell that many of them are melanoepitheliomata is accepted by leading pathologists. The view is commonly held that these growths originate from the chromatophores, presumably connective tissue cells, and not from the epithelial cells. Unna's contention that they are melanoepitheliomata is now losing ground, and the view is being held that they originate in this special tissue. In one case, a tumor of this kind existed on the foot for a number of years without giving rise to metastases, although as a rule these growths metastasize early and are rapidly fatal.

THE ROLE OF ANIMAL EXPERIMENTATION IN THE DIAGNOSIS OF DISEASE*

"The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals."—*Charles W. Eliot.*

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We must recognize a disease before we can hope to prevent or cure it. The diagnosis is, therefore, of fundamental importance; indeed, on correct diagnosis rests the entire structure of preventive and curative medicine. The power of recognizing a large number of diseases with unerring certainty has raised medicine from a despised empiric art to an exact science, the leaders of which rank with the most distinguished men of any calling in the esteem and gratitude of mankind.

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[32] Nicolas, Durand and Moutot: Ann. de dermat. et de syph., 1908, Series 4, ix, 208.

* This is Pamphlet III in a series issued for public information by the Council on Defense of Medical Research, referred to editorially last week. See advertisement in this issue.

The importance of diagnosis holds true for every branch of human endeavor. The judge and jury must have a correct diagnosis of a case at law to judge correctly the facts. The reformer must diagnose evils before he can hope to correct them. The bridge-builder must recognize the cause of weakness in order to correct or prevent faulty construction. Deprived of the power of correct diagnosis, the physician of to-day would have no more mastery over disease than the primitive medicine-man, and his patients would suffer accordingly. Without the means of correct diagnosis, the sanitary sciences would revert to guesswork and chaos. The prevention or suppression of tuberculosis, malaria, plague, typhoid fever, diphtheria and other communicable diseases would be a hopeless task without modern methods of diagnosis. These methods play an equally important part in the exclusion of exotic plagues at our maritime quarantines.

It is perhaps not generally understood that we depend largely on animal experimentation in order to make a positive diagnosis of many of the important diseases of both man and the lower animals. To illustrate the extent to which modern medicine is dependent on animal experimentation for diagnosis, the following instances are cited:

TUBERCULOSIS

The final recognition of the tubercle bacillus, which is our main reliance in diagnosing this disease, depends entirely on animal experimentation. In fact, Trudeau well states that "everything that has a direct bearing on the prevention of tuberculosis, everything that has changed mankind's attitude toward it from one of apathy and hopelessness when the infectious agent which produces tuberculosis was unknown, and the disease was thought to be inherited and always fatal, to the growing hope of its ultimate conquest . . . we owe to animal experimentation."

The essential difference between the bovine and the human tubercle bacillus is one of experimental virulence as tested on the lower animals. Further, there are many bacteria that cannot be distinguished from the tubercle bacillus when examined under the microscope or in artificial cultures, and we must resort to animal experimentation to gain the knowledge we seek. In many cases we are unable to find tubercle bacilli in the sputum on account of their scarcity, while the same material inoculated into a guinea-pig demonstrates their presence with absolute certainty. The sacrifice of this one guinea-pig will often save a human life by giving early recognition of the disease. Successful treatment is often hopeless without early diagnosis. What reasonable being would not thus sacrifice a guinea-pig to save the life of a loved one? Experimental tuberculosis in the guinea-pig is apparently a painless malady and the animal is usually killed with chloroform before the disease has progressed very far, both to gain an early knowledge of the desired facts and to prevent needless suffering on the part of the animal.

We must depend on animal inoculations in order to distinguish between a live and a dead tubercle bacillus. This is a matter of the greatest practical importance, for all our exact knowledge of the efficiency of heat and other germicidal agents used in the warfare against tuberculosis depends on this distinction. These facts are obviously useful in protecting mankind from whatever danger there may be from tuberculous infection in milk, meat and other foodstuffs. Further, this knowledge is also of prime importance in order that we may know when and how to destroy tubercle bacilli in sputum and other discharges so as to prevent the spread of the infection. In the present state of our knowledge, this information can be gained through animal experimentation only.

TYPHOID FEVER

The ultimate recognition of the typhoid bacillus depends on the use of the specific agglutinins. The specific agglutinins may be produced in the blood-serum of certain animals. These specific agglutinins are usually obtained from the horse or the rabbit. The animals are inoculated with small quantities of cultures of the typhoid bacillus, to which they are not very susceptible and which do not seem to discommode them. After a few injections, at intervals of four to eight days, the blood-serum of the horse or rabbit exhibits the desired property of clumping or agglutinating the typhoid bacillus. This property is specific and definite, and is depended on in all careful work in the diagnosis of typhoid fever. Laboratories now use large quantities of such serum to detect the presence of the typhoid bacillus in the feces, urine or blood of persons sick with typhoid fever or suspected of having it in a clinically unrecognizable form. This serum is also indispensable in the detection of bacillus-carriers, who are such a menace to the public health.

Other laboratory tests or clinical methods not depending on animal inoculations are useful in the diagnosis of typhoid fever, but they are not satisfactory, accurate or final. The only positive method of recognizing typhoid fever depends on the isolation of the typhoid bacillus in pure culture; and this determination rests on animal experimentation.

CHOLERA

The cholera story is a repetition of that of typhoid. A cholera "vibrio" may be curved, straight, spiral or round; it may liquefy gelatin or not, may produce cholera red (indol) or not, etc.; but a micro-organism is cholera only in the event that it responds to the specific agglutinin obtained through animal experimentation. Bacillus-carrying is common in cholera. Mild cases are impossible to recognize clinically. A single bacillus-carrier or a single mild case may be sufficient to infect the water-supply of an entire community. At Hamburg, in 1892, the river Elbe was infected from a few unrecognizable cases (perhaps one case) of cholera. Nearly 17,000 persons who drank this infected water contracted the disease and slightly more than half died in the short period from August 17 to October 3.

Cholera introduced from abroad has devastated our own country more than once. That it has been kept out successfully of late years is due entirely to modern preventive measures, in which diagnosis through animal experimentation is an important feature.

The quarantine officer at a seaport must have the specific serum in order to recognize a mild case or a bacillus-carrier. For the want of a few drops of such agglutinating serum a serious epidemic may result, and the commerce and industry of an entire nation be disturbed.

RABIES OR HYDROPHOBIA

This is an acute, fatal and communicable disease. The diagnosis of rabies may be made tentatively by the finding of Negri bodies in the central nervous tissue and other pathologic changes; but the more experienced one becomes in the diagnosis of this disease the more reliance one places on animal experimentation. All advances that have been made in the subject of rabies have depended on animal experimentation. It may interest the zoophilists to know that the sacrifice of a few dogs and rabbits in the study and prevention of rabies has been the means of saving the lives of many times their number of dogs, horses, cattle and other animals from this disease.

PLAGUE

The plague bacillus has certain cultural morphologic characteristics, such as a stalactite growth on bouillon, bipolar staining, and involution forms on salt agar; but this organism, which is the cause of the great black death, cannot be recognized with certainty except through animal experimentation. Kolle's method consists in rubbing a little of the suspected material on a shaved patch of skin (about the size of a dime) of a guinea-pig. If plague bacilli are present and virulent the animal contracts the disease in a few days. This method of diagnosing the disease is the foundation on which the preventive measures were carried out in California in the recent successful plague campaign. Animal experimentation is indispensable in the recognition of this disease as it occurs in man, the rats, the squirrel and other animals.

It was entirely through animal experimentation that sanitarians were given the useful knowledge that plague is transmitted from rat to rat and from rat to man through the agency of the flea. With the ability to diagnose the disease with certainty and with a correct knowledge of the channels of infection, suppressive and preventive measures may now be carried out with every assurance of success.

DIPHTHERIA AND TETANUS

The diagnosis of these two diseases may be made tentatively without the use of animal experimentation, but in this, as in many other such instances, appearances are deceiving and we must resort to tests on the lower animals in order to be sure of our diagnosis. The diphtheria and tetanus toxins cannot be recognized except by their effects on animals, and the same is true of the antitoxins. There is a whole group of organisms that look like and grow like the diphtheria bacillus, and are known as "pseudodiphtheria" bacilli. The shape and growth of the tetanus bacillus also is not distinctive enough to be final. We must, therefore, resort to animal experimentation in order to establish the idenfity of these organisms and the diseases which they produce.

SEPTICEMIA AND PYEMIA

The diagnosis of these conditions, which are commonly known as blood-poisoning, frequently requires animal experimentation. Our knowledge of these conditions, on which is based aseptic surgery and the modern treatment of wound infections, has resulted in large measure from experiments made on animals.

It is not possible in a few pages to specify all the instances in which animal experimentation serves a useful purpose in the recognition of disease; but in addition to the foregoing it plays a more or less important part in the diagnosis and prevention of pneumonia, dysentery, Malta fever, anthrax, glanders, actinomycosis, and a large class of maladies due to microparasites.

Further, it must be plain to anyone who gives the matter careful consideration that animal experimentation has not only been potent in preventing much suffering and saving many a human life, but it has been even more active in the realm of the lower animals. A more exact knowledge of the causes and channels of infection and the methods of diagnosis of the communicable diseases of the lower animals has resulted in intelligent and humane efforts to conserve the health and comfort of our live stock. A full exposition of this subject is presented elsewhere, and mention is here made of only such epizootics as glanders or farcy, symptomatic anthrax or black leg, actinomycosis or lumpy jaw, anthrax or splenic fever, tetanus, swine plague, chicken cholera, hog cholera, Texas fever and foot and-mouth disease.

Kipling says:

> The doctor is exposed to the criticism of persons who consider their own undisciplined emotions more important than mankind's most bitter agonies; who would cripple and limit research for fear research might be accompanied by a little pain or suffering. But if the doctor has the time to study the history of his own profession he will find that such persons have always been against him—ever since the Egyptians erected statues to cats and dogs on the banks of the Nile.

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THE SIGNIFICANCE OF EHRLICH'S ALDEHYD REACTION IN THE URINE*

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About eight years ago Ehrlich first noticed that normal urine gave a faintly reddish coloration when treated with a muriatic acid solution of paradimethyl amino benzaldehyd; and that this coloration was remarkably intensified in certain pathologic conditions. To Otto Neubauer[1] is due the credit of having isolated the particular chemical substances causing the reaction, proving that it was caused by pyrrol derivatives present as urobilinogen substances, the product of the metabolism of blood pigments; and, reasoning inversely, he came to the conclusion that the blood pigments themselves were derived from pyrrol derivatives rather than indol substances, as upheld by Nenki. He, furthermore, contended that these urobilinogen substances, mother substances from which the urobilin was formed, were present in increased amounts when there was an increased breaking down of blood pigments, especially in malaria, lead colic, lobar pneumonia, lung infarct, venous thrombosis, liver diseases and some infectious conditions.

The object of the present investigation was to determine the clinical value of the reaction, since it is so readily and easily carried out. Undoubtedly the determination of the urobilin in the urine would be more satisfactory, as recently contended by Hildebrandt,[2] since by his method of treating the urine with zinc acetate all urobilinogen substances are converted into urobilin, so that both substances are determined at once, whereas the aldehyd reagent shows only the presence of urobilinogen, its action on urobilin causing no change in color. The present investigation was begun some nine months ago, since which time the work of Conner and Roper[3] and Hildebrandt[2] has appeared. My observations so clearly verify many of the observations and predictions of the former writers that their publication seems necessary.

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* From the laboratory of the Cincinnati Hospital.

* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

[1] Neubauer, Otto: Sitzungsb. d. Gesellsch. f. Morphol. u. Physiol. in München., 1903, No. 2, xix, 32.

[2] Hildebrandt: München. med. Wchnschr., April 6, 1909, p. 710.

[3] Conner, L. A., and Roper, J. C.: Arch. Int. Med., Jan. 15, 1909, ii, 532.

The question of the origin of the urobilinogen and urobilin naturally is brought up, and the various theories for the production of the same called to mind, namely, the enterogenous, hepatogenous, hematogenous, histogenous and renal theories, recently so well summed up by the writers referred to. At the outset it may be stated that my observations would tend to support the enterohepatogenous theory, namely, that under normal conditions the reduction of the biliary pigments into urobilinogen and urobilin takes place in the intestines in accordance with the views long since expressed by F. Müller and Otto Neubauer, and that a pathologic urobilinuria or urobilinogenuria results when the liver is insufficient; that is, when it is unable to excrete an increased amount of urobilinogen or urobilin when absorbed from the intestines, or when, through disturbances in the liver itself, it is unable to excrete a normal or even deficient amount of these substances. In infections of the liver evidence would point to the fact that these substances may be locally formed in the liver itself. Although the histogenous theory can not be discarded, it would seem that the chief organs concerned ordinarily are the intestines and the liver.

CLINICAL APPLICATION

The reagent used was prepared as follows:

Twenty grams of paradimethyl-amino-benzaldehyd were dissolved in 1,000 c.c. of dilute muriatic acid, made by diluting 150 c.c. of the chemically pure acid to 1 liter with distilled water. To about 5 c.c. of cold urine taken soon after being voided, because long standing causes a conversion of the urobilinogen into urobilin through the action of air and sunlight, 5 to 10 drops of the reagent were added. The mixture was shaken and allowed to stand a minute or two. Normal urine gave a varying coloration, which was intensified to a distinct cherry-red color on heating, usually associated with a peculiar pungent odor. Neubauer asserts that the urobilinogen represents various substances, ranging in structure from $C_8H_{13}N$ (hemopyrrol) to $C_{32}H_{40}N_4O_7$ (urobilin itself) and that the more sensitive give the reaction in the cold, the less sensitive only on heating. When the reaction is distinctly scarlet in the cold, a pathologic condition of the urine is present. Experiment soon showed that the intensity of the reaction varied, even in the normal urine, and the following scheme of recording results was adopted:

A negative result, i. e., maintenance of the original color of the urine, or a yellowish coloration after adding the reagent was reported as —0; a faint reddish color only obtained on looking through the whole columns of urine in the test-tube from above, as + 1; when the mixture presented a pinkish or faintly reddish hue, on looking at it from in front, as + 2; when a distinctly scarlet coloration was obtained, it was recorded as + 3; which intensity of reaction alone is of any pathologic significance.

Examination of my own urine through a period of twenty-five days showed that the reaction varied from one day to the other, but that it never assumed a + 3 reaction in the cold, but always on heating. From this it was assumed that an apparently normal individual with a properly functionating liver was able to preserve a urobilinogen balance; that is, the liver was able to excrete these substances derived from the intestines, only allowing a trace to appear in the urine. It may be possible that in cases of severe constipation, or so-called torpid liver, even in an apparently normal individual, the reaction might approach + 3 in intensity, but if this condition persists following free purgation, undoubtedly a pathologic condition is at hand.

The reaction was next applied to the urine of a series of nearly 200 cases taken from all wards of the City Hospital; the tables show the distinct degree of reaction obtained in many of these cases. First, as to the color of the urine: This was recorded in a total number of 107 cases. Of the 74 light-colored urines examined:

13 (17.5 per cent.) reacted + 3
9 (12.4 per cent.) reacted + 2
10 (13.5 per cent.) reacted + 1
42 (56.6 per cent.) reacted — 0

Of the 33 cases of dark-colored urine examined:

13 (39.4 per cent.) reacted + 3
5 (15.1 per cent.) reacted + 2
2 (6.1 per cent.) reacted + 1
13 (39.4 per cent.) reacted — 0

This shows conclusively that the positive reaction was more commonly found in dark-colored urines, 21.9 per cent. more than in light-colored urines, but that it also occurred quite frequently in the latter. In the dark-colored urines a negative reaction was correspondingly less frequent—17.2 per cent. less. On the whole, then, the reaction is independent of the color of the urine, being more common, however, in dark-colored urines.

TABLE SHOWING DEGREE OF REACTION IN ABOUT ONE HUNDRED AND FIFTY HOSPITAL CASES

Clinical Diagnosis.	No. Cases.	Reaction +3	+2	+1	—0
Acute lobar pneumonia	17	7	2	1	6
Malaria	2	2	.	.	.
Scarlet fever	5	.	.	.	5
Acute articular rheumatism	12	5	.	2	5
Typhoid fever	10	1	3	1	5
Influenza	5	2	.	1	2
Erysipelas	2	.	.	.	2
Simple pulmonary tuberculosis	5	.	1	1	3
Complicated pulmonary tuberculosis	2	2	.	.	.
Appendicitis	3	.	.	2	1
Pelvic cellulitis	2	.	2	.	.
Tonsillitis	2	.	1	.	1
Pus tubes	4	.	.	1	3
Endometritis	1	.	.	.	1
Cystitis	2	.	.	1	1
Cirrhosis of liver	2	1	.	.	1
Carcinoma of liver	1	1	.	.	.
Miliary abscess of liver	1	1	.	.	.
Catarrhal jaundice	4	2	.	.	2
Myocardial insufficiency + edema	8	5	2	.	1
Pleurisy with effusion	5	4	.	.	1
Pericarditis + diaph. pleurisy	2	.	.	.	2
Pleurisy dry adhesive	3	.	2	.	1
Acute nephritis	5	1	.	2	2
Uremia	1	1	.	.	.
Chronic nephritis	5	.	.	.	5
Abortion	3	.	.	.	3
Shot wound of chest	1	.	.	1	.
Shot wound of abdomen	1	.	.	.	1
Shot wound of kidney	1	.	.	1	.
Ruptured abdominal aneurism	1	.	.	.	1
Fracture femur	1	.	.	1	.
Hemorrhoids	2	.	.	.	2
Venous thrombosis	1	.	.	.	1
Syphilis	2	.	.	.	2
Lead colic	1	.	.	1	.
Trichiniasis	2	.	.	1	1
Diabetes mellitus	5	.	1	.	4
Chronic alcoholism	2	.	.	.	2
Carbolic acid poisoning	1	.	.	1	.
Diabetes insipidus	2	.	.	.	2
Burn cases	4	.	.	.	4
Morphinism	3	1	.	.	2
Senile dementia	1	.	.	.	1
Dementia paralytica	1	.	1	.	.
Neurasthenia	2	.	.	.	2
Melancholia	1	.	.	1	.
Acute gastritis	1	.	1	.	.
Acute bronchitis	4	1	.	.	3

To sum up: The reaction is most commonly obtained in diseases of the liver, myocardial insufficiency with edema, pleurisy with effusion, and acute catarrhal jaundice, all conditions in which the proper elimination of the urobilinogen through the liver after absorption from the intestines is interfered with; furthermore, in some infectious conditions, as lobar pneumonia, malaria and articular rheumatism. An absence of a pathologic reaction has been conspicuous in more or less localized septic states, as pelvic abscess, pus tubes, tonsillitis, simple pulmonary tuberculosis, acute bronchitis, erysipelas, dry pleurisy and pericarditis, despite the increased temperature.

In this series of cases the absence of the reaction in typhoid fever and scarlet fever is to be noticed. In localized extravasations of blood following shot wounds, or rupture of aneurism, no increase in the intensity of the reaction is to be noticed. Convalescence from a condition in which the reaction was marked was followed by a return to the normal; thus, in both cases of malaria, the quick response to quinin treatment was followed by a disappearance of the reaction. In incipient cases of disturbed myocardial insufficiency, and in suspected cases of gall-stone trouble with a clear history and response to treatment, the reaction was not present. Undoubtedly a positive reaction which persists, in these cases, would indicate a marked disturbance, either in the production of the urobilinogen in the small intestines plus increased absorption or a disturbance in the eliminating power of the liver. It must be borne in mind that one section of the liver may be involved and yet the remainder may be efficient, as was demonstrated in one severe case of syphilitic cirrhosis of the liver in which the reaction was negative, though a diminished formation in the intestines may have been present. The reaction is not a constant one, even in those conditions most commonly the cause. That a positive reaction may be of some assistance in suspecting liver involvement was shown in a case of miliary abscess of the liver following infectious thrombophlebitis.

Case 1.—The patient, a young man, first showed symptoms of appendicitis; later localized peritonitis developed, at which time the reaction was + 2 in intensity. These symptoms subsided, but later increased temperature plus tenderness over the gall bladder made the attending physicians suspect gall bladder or liver involvement. The urine showed a positive aldehyd reaction in cold, and the presence of leucin and tyrosin in the urine. Operation was resorted to for suspected cholecystitis. At operation the gall bladder was apparently normal and cultures taken proved negative. The patient collapsed suddenly on the table.

Autopsy.—This revealed an enlarged liver, studded throughout with miliary abscesses along the portal tract evidently, and an infectious thrombophlebitis. Cultures from the portal vein and abscess areas both showed the presence of diplococci and a colon-like organism, evidently the result of infection following absorption from the originally involved appendix.

Clinically this case beautifully demonstrates what Fischler[4] showed experimentally on animals, namely, that under certain conditions urobilin can be formed in the liver itself. He made biliary fistulas in dogs draining the bile to the outside, and then injected amyl alcohol and phosphorus into the gall bladder. The liver became involved, and urobilin again appeared in the urine; with the subsidence of the condition, it again disappeared. In my case the liver itself became involved through infection along the portal tract.

EXPERIMENTAL DATA

Since Muller reported the interesting fact that when the common bile duct becomes occluded the urobilin disappears from the urine, the German school has adhered to the enterogenous theory as to the origin of the urobilin, namely, that when the bile is poured into the intestines and is subjected to the action of the reducing bacteria, urobilin is formed and absorbed from the intestines; it is again excreted through the bile and, to some extent, through the urine. Bile usually contains some urobilin. Neubauer[1] later asserted that occlusion of the common duct would also be followed by absence of the urobilinogen in the urine, bile and intestines, and that this might be shown by a negative aldehyd reaction in the urine, both in the heat and cold. Kimura[5] showed that normal bile always contained urobilinogen, using the aldehyd reaction and the spectroscope to detect the absorption band.

With the object of verifying this fact through animal experiment the following investigations were made: It was found that normal rabbit urine reacted toward the aldehyd reagent exactly as does the normal human urine. Rabbits were therefore used, and each experiment conducted under ether anesthesia. Ether was given in minimal amounts, and never exceeded 30 minutes. In two instances the animals died within a few hours following the operation, but no changes beyond the normal were found in the urine.

Experiment 1.—Male rabbit. The common bile duct was ligated with silk and the operation wound closed. The animal died eighteen hours after operation.

Urinalysis.—Urine before operation, negative in the cold, + 3 on heating. After operating the urine taken from the bladder soon after death was reddish. Aldehyd reagent caused a negative reaction in the cold, the reddish color of the original urine soon disappearing on adding the reagent. On heating a brownish precipitate formed, but no scarlet color developed. The cold urine was then heated, filtered, and the reagent added after cooling. Reaction was + 1, on heating no increase in the intensity of the reaction. The urine, drawn before operation and preserved on ice in the dark, when added to the catheterized specimen immediately caused a scarlet coloration on heating with the reagent.

Autopsy.—This, made about twelve hours after death, showed abdominal wound perfect, no escape of bile, liver enlarged, congested, apparently bile-stained. Common duct ligated, severe congestion from this point upward. The aldehyd reaction negative in the heat and cold, but not confirmed by spectroscope examination. Kidneys both showed an acutely congested appearance.

Experiment 2.—Male rabbit; common duct ligated and operation wound closed. The animal died thirty-six hours after operation.

Urinalysis.—Urine after operation showed a negative reaction in the cold, and + 1 on heating. Addition of the urine obtained on the previous day before operation caused intense reddish coloration on heating with the reagent.

Autopsy.—Thoracic organs normal. Abdomen showed an early localized peritonitis, immediately below the operating wound. Liver was bile-colored, gall-bladder dilated.

These experiments both show that occlusion of the common duct is early manifested by a decided alteration in the normal reaction. On heating with the reagent only the faintest trace of a reddish color was noticed. On adding the normal urine, however, the color immediately became scarlet, showing conclusively that the urobilinogen had practically been eliminated; in reality none had been formed, because the action of the reducing bacteria in the intestines had been excluded. The fact that the reaction on heating was still recorded as + 1 would show that, as late as thirty-six hours after the second experiment, there was still a slight trace of urobilinogen present, which no doubt was due to residual urobilinogen in the tissues, this time interval not being sufficient to cause complete elimination from

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[4] Fischler: Das Urobilin u. seine klinis[illegible] Heidelberg, 190[illegible]

[5] Kimura, T.: Deutsch. Arch. f. klin. Med., 1904, lxxix, 274.

Dr. Robert Field Library
MEDICAL

the system. Several experiments were made of infecting the gall bladder above the point of constriction, in order to observe, if possible, the reoccurrence of the scarlet color, due to changes in the liver through bacterial action. No results were obtained, however.

Complete occlusion of the common bile duct is therefore followed by a negative reaction, both in the cold and in the heat, after adding the aldehyd reagent to the urine. There immediately occurs to one the possibility of using this fact as a means of diagnosis in cases of total obstruction of the duct through a stone, through inflammatory changes in the mucosa, or by compression from without through any source. Are these the only conditions which can cause this change in the reaction? Kimura[5] has shown that in severe diarrheas a similar condition is obtained, owing to the fact probably that no bile can be reduced in the intestines under such a condition, or absorption becomes impossible. We must further conceive of the possibility of a patent ductus venosus, allowing of the discharge of bilirubin into the intestines, although occlusion of the duct be present. In the newly born the same condition is obtained, because bacterial reduction has not as yet begun.

In my list of clinical cases two other conditions were encountered, which gave a similar result.

Case 2.—Infant, female, aged 17 months, died eight days after acute phosphorus poisoning caused by eating matches. The urine examined before death had unfortunately been standing from thirty to thirty-six hours before the aldehyd reaction was tried. It was, however, found negative both in the heat and the cold. Tyrosin was also found in the urine.

Autopsy.—Made about four hours after death; showed a somewhat enlarged liver, distinctly fatty. Heart showed beginning endocarditis. Intestines were somewhat congested. Microscopic examination of the liver showed distinct fatty changes and round-celled infiltration about the vessels; the liver cells were poorly stained and fat globules numerous. The urine obtained at autopsy showed a negative aldehyd reaction both in the heat and the cold.

Case 3.—Clinical diagnosis, transverse myelitis. An operation had been performed to relieve any supposed compression of the cord about at a level with the fifth dorsal vertebra, since a distinct traumatic history was given. No relief followed. Immediate operation, however, was successful from a technical standpoint. The patient sank rapidly from incontinence of both urine and feces, and at last refused to eat, so that exhaustion ultimately resulted in death. For several days previous to death profuse hemorrhages occurred from the lower bowel.

Autopsy.—There was found an extremely fatty liver, chronic interstitial nephritis, and hemorrhagic condition of the lower colon. The urine obtained at this time likewise showed a negative reaction in the heat and cold.

In both these cases it may be argued that postmortem changes in the urine caused these variations in the aldehyd reaction from the normal. Among numerous cases examined after death, however, these two cases were the only ones which presented such a condition. Hildbrandt believes that in severe phosphorus poisoning the general destruction of the liver would lead to such findings. He has no direct evidence to support his views, however. Case 2 was undoubtedly one of acute phosphorus poisoning, and tyrosin was found in the urine; bile could not be detected by the nitric acid or iodin tests. Before death, however, the stools were very frequent, quite pale, and grayish in color. To what extent the profuse diarrhea was instrumental in causing the negative urobilinogen reaction can not be definitely told. Likewise, in Case 3, frequent diarrheic stools were present before death, and in addition a severe hemorrhage from the bowel on repeated occasions. In both cases, however, the liver showed marked fatty degeneration, which would tend to support the views of Hildebrandt. In the future severe anemias may be shown to react in a similar way, because of the lessened destruction of blood pigment in late stages.

In phosphorus poisoning the variety, whether acute or chronic, must also be taken into consideration. Harnack[6] has recently shown experimentally that in acute cases following injection of phosphorus into the stomach rapid degeneration and fatty changes are produced in the liver. In more chronic cases, as when subcutaneous injections of phosphorus in oil are given, the degenerative changes in the liver are still present, but not so intense as in the more acute cases, inflammatory reactions on the part of the liver being more common. Therefore, it may be possible that in chronic phosphorus poisoning the destruction to the liver substance may not be so intense as to lead to a total absence of urobilinogen in the urine, as indicated by a negative aldehyd reaction in the heat and cold.

The animal experiment was again called into play, to shed, if possible, some light on this subject.

Experiment 3.—A male rabbit was given phosphorus in oil mixed with the food. About six hours later it began to show signs of being ill, and died some time during the night.

Urinalysis.—Before operation, at which time the bladder was emptied, the urine showed a negative reaction in the cold, and a positive reaction on heating. The urine, withdrawn from the bladder some time after death, showed a similar reaction.

Autopsy.—Stomach full of food, phosphorus fumes still escaping. The most dependent part of the organ showed an escharotic-like condition of the mucosa. The liver was not particularly enlarged, was distinctly mottled on section, but did not present a fatty appearance. Microscopically the liver showed distinct cloudy swelling of the cells, round-celled infiltration about the vessels, and engorgement of the capillaries. No fatty globules could be detected. The kidneys were enlarged and had a congested appearance.

The above experiment did not result in such marked fatty changes as to lead to a complete obliteration of the urobilinogen in the urine. It is possible that the death occurred too rapidly for such changes to be caused, and that a more gradually induced toxemia would have produced the desired result. To establish this point a second animal was used for experiment.

Experiment 4.—A male rabbit was given phosphorus in oil per mouth. On the three succeeding days the urine was normal in reaction, i. e., negative in the cold and positive on heating. On the fourth day more phosphorus was fed. On the day following the reaction was + 3 in the cold, distinctly positive. This persisted for five days, when more phosphorus was given per mouth. On the following day the reaction was negative in the cold, and a brownish coloration only developed on heating. Twenty-four hours later the reaction was negative in the heat and cold. The animal now showed signs of considerable weakness and suffering, and was killed by chloroform anesthesia.

Autopsy.—The liver was somewhat contracted, pale yellow, with a mottled appearance on section. The liver was still firm. Microscopically there was almost total obliteration of the liver cells; those remaining were pale with poorly stained nuclei. Numerous fat molecules were distributed throughout. There was round-celled infiltration about the vessels, and seemingly a beginning formation of connective tissue. The stomach was full of undigested food. The small intestines were nearly empty, the large intestines packed with ordinarily formed stools. The bile was thin, light greenish in color, and showed a negative aldehyd reaction in the cold and in the heat.

In this instance the destruction of the liver substance had been so great that no bilirubin was offered to the intestines for reduction. All stages of the reaction were also beautifully demonstrated, varying from

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6. Harnack, E.: München. med. Wchnschr., March 2, 1909, p. 436.

the normal to a relatively and at last an absolutely deficient liver as indicated on successive days by the changes in the aldehyd reaction.

CONCLUSIONS

The clinical value of the aldehyd reaction obtained by adding the reagent to cold, freshly passed urine, and then noticing the changes in the color, at first in the cold and then on heating, is manifest, though limited at times.

The color reaction in the cold is of pathologic significance only when a distinct scarlet color is obtained.

When the reaction persists following free purgation a pathologic condition is at hand.

The reaction is most commonly present in diseases of the liver and bile passages, severe grades of myocardial insufficiency, and certain infectious conditions, as lobar pneumonia and malaria.

The reaction is not a constant one, even in apparently severe grades of the above conditions, presumably because the liver is still efficient in excreting any normal or increased amount of urobilinogen offered it.

Localized infections are more seldom accompanied by this reaction, and when it does persist in such conditions the condition of the intestines and liver should be taken into consideration.

In early grades of myocardial insufficiency of gall-stone trouble, and of liver disturbances the reaction is often a negative one. The appearance of the reaction in such cases previously negative would arouse suspicions of disturbances in the hepatic function; inversely, the disappearance of a reaction previously positive would indicate improvement.

The positive reaction is not constant in localized extravasations of blood into the tissues.

When the reaction is positive some care must be exercised in the selection of an anesthetic for operations, since it is well known that chloroform, for instance, can be a direct liver poison.

The absence of the reaction, both in the heat and in the cold, would indicate obstruction in the flow of bile into the intestines.

This condition is also obtained in cases of severe diarrhea, in the newly born, and in severe grades of destruction of the liver substance.

In conclusion I wish to express my indebtedness to the medical and surgical staff officers of the city hospital for their kind permission in allowing me to use the material at hand, to the internes—more particularly Drs. Light, Schlanser, Monroe and Mussey—also to Dr. A. E. Osmond, without whose kind assistance and skill much of the experimental work would have been impossible.

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CRATÆGUS OXYACANTHA *

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Two years ago my attention was called to this agent and since then I have used it rather extensively in order that I might satisfy myself if it had the therapeutic value claimed for it by the sectarian schools. It has been in use by the homeopathic and eclectic schools for some years, but the mass of therapeutic legends surrounding it has deterred physicians of a scientific turn of mind from believing that it was likely to have any efficacy. Originally it was the secret of a quack in the south of Ireland, who by its use is said to have achieved an extensive reputation for the treatment of heart disorders throughout the British Isles. On his death he bequeathed the secret of his successful practice to his niece (if we can believe the romantic story told). She, in a true womanly spirit, could not or possibly would not keep a secret and thus made it known to medical science.

There are only two articles concerning this agent in the regular medical literature. One, Dr. Jennings[1] of Chicago, in 1896 found it such a cure-all for all cardiac complaints that the profession must have judged it to be good for none. Two years later Dr. Joseph Clement[2] extolled *Cratægus oxyacantha* as a sovereign remedy for angina pectoris; the article attracted no comment. In the homeopathic literature there are a number of small articles in the main grossly exaggerating its virtues and consequently of little scientific value. The homeopathic physicians use it for its drug (physiologic) effect just as they would use digitalis or quinin and not according to their so-called provings, in homeopathic doses.

For that reason the dosage in their literature is somewhat like ours. The eclectic physicians employ it quite extensively and it has been kept prominent largely through their efforts and through the work of the pharmaceutic houses of that school.

It is derived from the ripe fruit of the hawthorn (*Cratægus oxyacantha*). These berries are eaten by some people as a fruit. They must be gathered after the first frost. By some pharmaceutical houses the American species (*Cratægus coccinea*) is used and is thought by some observers to be quite as efficient as the *oxyacantha*. Concerning this the eclectics disagree. A reliable fluidextract or tincture is the best preparation. It has a fruity odor with a rather pleasant taste, is seldom rejected by the stomach, and so far as observed has no cumulative effect. Thus far the active principle has not been isolated, nor have its physiologic properties been determined by animal experimentation.

Some work of this kind is now under way at the physiologic laboratory of Fordham University and will be reported on at a later period. Thus far my own experience with it has been entirely clinical in character and has seemed to warrant its use in some of the cardiac neuroses.

The following cases are illustrative of a type sometimes benefited by this agent:

Case 1.—*Patient.*—Mrs. M., aged 33, quintipara, negative family history, for the past eight years has had hay asthma. During the last four years she has been having frequent attacks of pain and distress in the cardiac region. In these attacks the patient thinks that she is going to die. At times they are associated with syncope; sometimes they are continuous for weeks. Physical examination during the attack is negative except for a slight lateral enlargement of cardiac dulness and a pulse of 90. There are no evidences of exophthalmic goiter. These attacks bear no relation to disorders of the gastrointestinal tract.

Treatment.—All sorts of cardiac tonics and stimulants seem to increase the trouble. Bromids quiet the nervous system and lessen the apprehension but do not affect the cardiac disturbance. The addition of cratægus in 20-minim doses gave the first complete relief in four years. The relief has been permanent as far as the attack was concerned, and whenever the patient feels the oncoming attack she resorts to its use again, and always with success.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Jennings: New York Med. Jour., Jan. 14, 1906.
2. Clement, J.: Kansas City Med. Recorder, April 7, 1898.

Case 2.—*Patient.*—Mrs. H., aged 28, has been having attacks of pain over the precordia for the past year. These attacks are not connected with any gastric manifestations. The pain is of a squeezing character, is continuous and is made worse by *any form of excitement*. Examinations show a moderate blood-pressure and a mitral systolic murmur at apex.

Treatment.—The patient received some benefit from digitalis but the pain continued. Twenty minims of the cratægus given every four hours for two weeks caused the pain to disappear entirely and thus far, after three months, it has not returned.

In a few cases of non-compensating valvular disease, with symptoms in which there was an idiosyncrasy to the use of digitalis, it has afforded decided relief.

Notwithstanding the claims of the sectarians, I cannot satisfy myself that it has any decided diuretic action. In healthy individuals there is no appreciable rise in blood-pressure following its use. In disease I am not yet satisfied as to its blood-pressure-raising qualities. In a few cases there was an elevation of 10 mm., but it is a question whether it was due to the drug or to the rest and quiet.

In using this agent we must always keep in mind that it will not cover the whole field of cardiac therapeutics. *In cases that resist the action of the digitalis group*, there is but a faint chance that it will do good. In such cases it should be tried rather in combination than alone, *as it seems to act better as a synergist*. Most of us have had the experience of occasionally finding digitalis useless at first, but satisfactorily effective when combined with some other agent. Cratægus is essentially a mild cardiac tonic. When the heart is in a weak and irritable condition, following grip or in neurasthenia with a marked arrhythmia of the respiratory type, agents of the digitalis group are almost invariably badly borne. This is often a result of the digestive disturbance they so frequently entail. Here the cratægus often acts surprisingly well.

It is a perfectly safe agent with no poisonous effect. It can do no harm in aortic disease, and it is worthy of trial in these troublesome cases. In fatty degenerations and in heart lesions associated with high arterial pressure it should be a useful agent. It is better given during or after meals in doses of from 10 to 30 minims of a good fluidextract or a dram of the tincture. (The sectarian preparations of this agent are generally reliable.)

I frequently combine it with 20 grains of bromid and find that the effect is much intensified in the irritative conditions spoken of above.

As we all know, digitalis, the king of the heart, has many imperfections and shortcomings, and there is a constant search for agents to fill in the lacunæ left by these deficiencies. Sometimes these substitutes have for a time a vogue almost equal to that of the original.

More sober judgment always has shown the falsity of such claims. This agent fills one of these lacunæ and in no sense can it take the place of digitalis as a universal cardiac tonic.

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Hookworm Disease.—Stiles (*Public Health Reports*) finds no hookworm disease among the employees of the New England cotton mills, and believes the subject of child labor in the South, on account of that disease, presents a different aspect from that of child labor in the North. He would, however, place a 10-year-old daughter in the spinning room of a cotton mill rather than on the average small tenant farm in the South, as the disease is entirely due to soil pollution.

THE THERAPEUTIC MANAGEMENT OF ARTERIOSCLEROSIS BASED ON THE PRESENT VIEW OF ITS PATHOLOGY *

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Functional and structural derangement in the walls of arteries are the fundamental cause of many syndromes seemingly attributable to other pathologic conditions. The functional and structural states of arteriosclerosis are undoubtedly the prime cause in certain syndromes of the gastrointestinal system, of the nervous system and cardiovascular system not formerly so accredited. Recent studies in the clinical evolution of arteriosclerosis, especially in connection with that chief symptom, hypertension, have shown the early recognition and effectual treatment of this disease process to be of far-reaching importance.

With the purpose in view of setting forth this side of the subject this paper is presented. No new facts are to be added to our knowledge, but in the paper an effort will be made to call attention to the clinical aspect of arteriosclerosis in its broad sense and to indicate the remedial measures for its therapeutic management. It is unfortunate that the average medical mind should content itself with considering arteriosclerosis simply as an affection of the palpable arteries of the body. Arteriosclerosis, as now considered, embraces the whole arterial tree from heart to capillaries, whether they be in the brain, myocardium, kidney, liver, mesentery, intestines or extremities. As this broad view is presented *it should not be thought to mean that arteriosclerosis* shows itself only as a general disease. It is frequently symptomatically recognized as a local condition without the involvement of other parts.

THE STAGES OF ARTERIOSCLEROSIS

To approach this subject in a limited paper it would seem wise to treat the subject from a clinical standpoint and to apply the therapy to its clinical stages. A French[1] clinician has divided arteriosclerosis into four stages, which seems to place the several aspects of the disease in convenient form for our consideration.

1. *The Arterial Stage.*—By some this is called the stage of presclerosis, latent sclerosis or functional sclerosis. It is characterized by contraction of the arteries and by more or less spasm in the arterial wall, due to the toxins in the blood. It is held[2] that successive repetition of such accumulation of toxins in the bloodstream circulating for a long time in direct contact with the intima of the arterial wall excites that structure, and, later, the medial coat, to functional contraction. This abnormal contraction of the arterial wall is followed, in due course of time, by a superelevation of tension; at first more or less temporary, or transitory; later, more constant. Hypertension thus begun, with the intoxication, is productive of fixed arterial changes in the vessel wall. Some observers[3] consider hypertension a result and not a cause of arteriosclerosis.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Huchard, H.: Formes cliniques de l'artério-sclérose, Paris, 1909.

[2] Clombe, C.: L'artério-sclérose: sa pathogénie et son traitement. Lyon méd., 1907, cix, 433.

[3] Huchard, Rosenbach, Broadbrent, Allbutt et al. contend that hypertension is a cause of arteriosclerosis, while Chantemesse, Hayem and Lancereaux combat this theory.

but others maintain that hypertension is a precedent factor, not denying that it is also a concomitant factor of arteriosclerosis. That interesting series of experiments of Lustig,[4] who, after having excluded all other possible factors, found that the blood-pressure was increased by beef broth from 5 to 10 mm. Hg in persons with healthy arteries and hearts, seems to confirm this view. Now this hypertension, in many cases, may be of pure kidney origin in its incipiency. It may be of splanchnic origin in other cases. This toxic substance may cause contraction of the arteries up to the size of the brachial: the effect of the hypertension on the arterial tree leads to excessive tension, especially tension in the aorta, and consequently the systolic action of the heart is accentuated. Increased cardiac activity, restricted visceral circulation and contraction in the arterial mains can mean only structural hypertrophy to heart and vessels to compensate for these abnormal states. To epitomize the symptomatology of the stage of presclerosis four groups of symptoms may be mentioned—intoxication, arterial hypertension, miopragia and intermittent claudication.

2. *The Stage of Cardioarteriosclerosis.*—This is characterized by the ingrafting of the organic changes in the arterial walls, by the functional spasm, with resultant arterial stenosis. The concomitant effect of renal insufficiency and myocardial degeneration, due to endarteritis in the vascular walls of these organs, is to cause increased intoxication on the one hand and degeneration of the coronary field on the other. In this form arteriosclerosis shows groups of symptoms centering about one of several regions. With the permanent hypertension, with or without palpable hardening in external arteries, with or without marked symptoms of nephritic degeneration, with or without evidences of marked intoxication, the syndromes which may characterize this state of the evolution of arteriosclerosis are as interesting as they are varied, be they cerebral, cardiac, renal or splanchnic. In this stage, toward its close, the grave terminations of this disease may occur as asystole, cerebral hemorrhage, uremia, etc.

3. *The Mitroarterial Stage.*—This stage in the clinical evolution of arteriosclerosis is characterized by dilatation of the cardiac cavities, frequently of the orifices, by a lowering of the arterial tension, by a tendency to edema, by hydrops, by congestion of the organs. It is what the French call the mitralization of the disease.

4. *The Cardiectatic Stage.*—This is characterized by marked dilatation of the heart, edema, more or less general, firm, irreducible dropsy of extremities, dropsy of abdomen and dorsolumbar region, right hydrothorax, edematous congestion of lungs, and passive congestion of the liver, etc.

PROPHYLAXIS

There is probably no pathologic condition in which the preventive method of treatment is of more value than in this wide-spread disease. Arteriosclerosis, in one or another of its forms, whether general or local, incipient or established, suddenly or gradually undermining the vascular structure of the body to the point of failing compensation, impending apoplexy, cerebral softening, or what not, should receive the most thorough consideration from the standpoint of prophylaxis. When we reflect on the facts that in adults, sometimes in the young, this disease is very common after the fourth decade; that it is the underlying factor in many secondary degenerations in the body; that it is the basic cause of various syndromes commonly attributable more directly to certain organs, as the heart, kidneys, nervous system, gastrointestinal system and the lungs, it is not unreasonable to call attention to its prophylaxis in more or less detail.

This disease is very likely to occur in all persons (especially after the fifth decade) who are the victims of, for a length of time, gout, uricemia, saturnism, syphilis, excesses or irregularities in alimentation or tobacco, these being, according to experience, the principal causes of the process. While mature age is a factor in the cause, this disease has been noted in the young. One observer has recorded a case in a subject aged 28. Montard-Martin has reported a case in a child, without kidney disease or syphilis, dying of smallpox; Andrel has confirmed a similar observation by a postmortem on a girl aged 8; Brooks has observed coronary sclerosis in a boy 15 years old. Thus it may be seen that the prophylaxis may be wisely instituted in all cases in which any of the principal causes are known to exist for any long period of time. This fact, taken in connection with the varied symptoms referable to the circulatory system occurring during that stage known as the functional or presclerotic stage, should enable the physician to foresee and forewarn of coming changes. Those symptoms of the cerebral, cardiac, nervous or gastrointestinal system, symptoms of intoxication, with hypertension, accentuation of aortic second sound, impermeability of the kidneys, speak of the impending arteriosclerosis, and persons showing these symptoms should be impressed with the danger threatening and directed along lines that would offer protection from the grave pathologic consequences.

It is true often that cases of arteriosclerosis are not seen until the disease is well established, not infrequently irremediably so, but it is also true that we see cases presenting the history of gout, or prolonged intestinal intoxication, or excesses in alcoholism or tobacco indulgence with these symptoms of miopragia. These are the cases in which the prophylaxis will accomplish much. These are the cases in which prohibition of excesses, elimination of intoxications and subsequent regulation of the food intake and habits of the individual, removal of vocational causes, and early and thorough treatment of specific disease will effect good prophylaxis. The excessive functional activity of the circulation should be curbed. The patient, having reached the fifth decade, with a history and an environment favoring the disease of the arteries, should in every case be plainly and emphatically instructed in the rules of more restrained life in which the eradication of the causal factors of arteriosclerosis should be attempted.

In cases of confirmed arteriosclerosis with secondary cardiac and renal involvement, or in cases with distinct tendencies toward mitral involvement and failing compensation of the heart, marked nephritis, cerebral disturbances or coronary symptoms, little can be accomplished in the line of prophylaxis so far as the disease itself is concerned, but it is nevertheless true, even in such cases, that much can be done to ward off and to defer the grave terminations. In some cases within my experience this line of procedure has beeen signally successful. The prevention of apoplexy for a few years, the control of coronary spasm, the supporting of the myocardium, the amelioration of the effects of kidney sclerosis may for a time enable patients with confirmed arteriosclerosis to do years of effective work.

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[4] Lustig, A.: Die Arteriosklerose und Gefässverkalkung und derenerfolgreiche Behandlung, Verhandl. d. Gesellsch. deutsch. Naturforsch. u. Aerzte, 1905.

For five years I have been able to prevent such a termination, which seemed almost certain in each case, of a school teacher, a preacher, a retired merchant (these I cite for illustration, among a number of others); and they are living comfortable lives, pursuing in modified regimen their several walks in life.

I dare to affirm that this subject is one which should engage the attention of the profession. It merits more consideration than has been accorded it. There is no disease problem, except that of the infectious diseases, more worthy of careful consideration than these diseases of the cardiovascular type. The teaching of the public mind is the secret in prevention of disease. When once the public mind is thoroughly aroused to the danger and to the means of prophylaxis, then the moral support and this knowledge upholds the hands of the physician, re-enforces his teachings, and carries conviction with his words. No structures of the body stand more abuse than the cardiovascular. No structures of the body, if protected and supported in time, will show more surprising recuperation. Therefore, I urge that the prevention of the oncoming arteriosclerotic changes be prevented by the removal of the known causes and that in established cases treatment be early instituted so as to forestall the inevitable evils sure to come in neglected cases.

MEDICINAL TREATMENT

Iodids.—For permanent results in the early cases of arteriosclerosis this group of drugs offers the best possibilities. The iodin qualities show in the double capacity of aiding in the destruction of the degenerated cells and in the restoration of the live but temporarily incapacitated cells. Such a therapeutic action tends to arrest the sclerotic process and to stimulate the normal structures to normal function. The continued good effects of this medication must be courted by gradually increasing the dosage until the organism secures enough stimulation to restore to activity the sluggish live cells and destroy enough degenerated cells to continue the restitution of function in the tissues. Small doses of the iodids, administered over a long period of time, fail to accomplish permanent results of a favorable kind. But large and progressively increasing doses produce strikingly good results, in early cases particularly. In the use of potassium iodid the patient should be started with a 10-grain dose three times daily; this should be daily increased until 60 to 70 grains are given each day. Iodism can be prevented in the administration of these large doses by the careful exclusion of acids from the diet and by the neutralization of the acid contents of the stomach.[5] This can be done by the use of any agreeable alkali, as the alkaline mineral waters. With potassium iodid it is wise to combine potassium bicarbonate in the proportion of one to two. The combination of sodium and potassium iodid, in connection with the alkaline medium, proves more satisfactory than the separate use of either and, therefore, when the use of these preparations is continued for a long period of time the combination of them is practiced. In this connection it should be stated that Romberg believes that potassium iodid possesses the virtue of reducing the viscosity of the blood and in that way assists in the relief of blood-pressure and in invigoration of circulatory tissues.[6] In cases in which the use of iodids by the stomach is impossible or unwise iodipin (iodized sesame oil, 25 per cent. iodin) can be administered by injection subcutaneously or intramuscularly in doses from 15 minims to 2½ fluidrams every second or third day. The absorption of the iodin is slow and the fear of iodism need not be entertained.

Thyroid Extract.—This is very useful in arteriosclerosis.[7] Its chief virtue is its power to control high arterial pressure. Iodothyrin is also efficacious in this connection.[8] I have used this remedy for a number of years, especially in women in whom the signs of arteriosclerosis are associated with possible thyroid disease; marked benefit has attended this line of medication in these cases. Lancereaux[9] states that he and Paulesco have employed iodothyrin in arteriosclerosis with excellent results. They administered 2 to 5 tablets of 25 centigrams each during twenty-four hours and found their patients benefited.

A So-called Serum.—Trunecek[10] has described a so-called serum for use in arteriosclerosis. It is composed of such ingredients as sodium chlorid, sodium sulphate, sodium carbonate, calcium phosphate, magnesium sulphate; and its originator claims for it good effects in arteriosclerosis, but other observers fail to note such favorable results, while still others state that pronounced harmful effects have been observed during its administration.

Nitrites.—The members of this group of drugs possess peculiar efficacy in arteriosclerosis. Their value rests on their ability to reduce high blood-pressure. They act promptly by vasodilatation. The official members of this group are amylis nitris, spiritus glycerylis nitratis (glonoin or trinitrin) and sodii nitris. If instantaneous effect is imperative, as in cases of angina pectoris, the use of amyl nitrite is called for. But its transitory effect renders it of very little use in cases demanding prolonged medication. It is an emergency remedy in this connection. Nitroglycerin, while somewhat slower than amyl nitrite in its vasodilator effect (although very rapid when administered hypodermically), is more lasting in its effect on hypertension. In cases in which the use of this nitrite is continued the use of the spirits of glyceryl nitrate in one or two drop doses is more desirable for the reason that its control of the high blood-pressure is more permanent. Sodium nitrite is more lasting in its effect than the other members of this group. It is slower in effecting its therapeutic action. In cases of arteriosclerosis demanding prolonged use of the nitrites this preparation is the most useful. Erythrol tetranitrate, introduced as a useful remedy in arteriosclerosis by Turney of Flintshire, England, lowers blood-pressure and maintains its vasodilator effect for a longer period of time than others of this class. Its effect is begun in fifteen to twenty minutes after its administration and persists for three to four hours thereafter. The dose is from ⅓ to 1 gr. The variation in the amount and frequency of the dose is regulated by the demands of the case and the effect on the patient. I recall that in one case of pronounced arteriosclerosis a small dose acted very badly, producing throbbing in the head, giddiness and great nervous excitement.

Theobromin.—The members of this group of drugs possess desirable vasodilator qualities, especially, one author states, in connection with the coronary circulation. They are known to have decided diuretic effect and thus help in the reduction of arterial hypertension and in the reduction of intoxication. Theobromin sodium salicylate, or diuretin, and theophyllin, or theocin, are favorably mentioned by several clinicians in this connection for their cardiac and renal effects. One observer particularly emphasizes the usefulness of this group in those cases of arteriosclerosis giving retrosternal pain and angina pectoris. Huchard advises the use of theobromin, as it directly stimulates the renal secretion, dilates the peripheral vessels, including the coronary and renal arteries, and at the same time stimulates the heart. Its derivatives may be used in place of the alkaloid and with more effect, since they are more soluble. In this connection diuretin and theocin are recommended.

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[5] Erlenmeyer and Stein. O.: *Iodin in Arteriosclerosis*, Therap. Monatsh., Berlin, 1909.

[6] Minkowski, O.: Die Diagnose und Therapie der Arteriosklerose, Therap. Monatsh., 1907, xxi, 449.

[7] Osborne, O. T.: Yale Med. Jour., 1907, xiii, 115; Ferguson, John: Arteriosclerosis, Canada Lancet, 1908, xli, 423.

[8] Hunt, R., and Seidel, A.: Studies on Thyroid. 1. The Relation of Iodin to the Physiologic Activity of Thyroid Preparations, Hyg. Lab. Bull. 47, U. S. P. H. and M.-H. S., October, 1908.

[9] Lancereaux: L'artério-sclérose; sa pathogénie et son traitement, Bull. de l'Acad. de méd., Paris, 1908, series 3, lix, 597.

[10] Trunecek: Med. Press. and Circ., 1902, new series, cxxiv, 567.

Calcium Monoiodobehenate.—Sajodin or monoiodobehenate of calcium, a colorless, odorless and tasteless powder, reputed to contain 26 per cent. of iodin and 4.1 per cent. of calcium, is said to be as efficient as potassium iodid without the unpleasant and harmful by-effects of iodism. It is given in doses ranging from 15 to 45 grains daily. I have no experience with this preparation.

DIETETIC AND HYGIENIC TREATMENT

Alcohol, tobacco, tea, coffee, should be interdicted in arteriosclerosis. This statement is subject to modification in special cases. But as a general proposition these substances, when used habitually, produce deleterious effects in the arteries and should be restricted to a minimum if not absolutely stopped. This is imperative in the late stages; it is wise in the early ones. All food should be taken in moderation. Excess of diet should be plainly and emphatically stopped. This applies in the early stage, but in the late it is imperative. Moderation in eating and drinking is essential to the arrest of the pathologic processes under consideration. As a general rule, the animal foods should be restricted, for in these foods there are formed during digestion substances that but add to the conditions already prevailing in the body. The evidences of fermentation and putrefaction of food in the intestinal tract must be looked for and the diet must be controlled with the idea of reducing this condition to a minimum if not of eliminating it entirely. The vegetable diet may be recommended to the exclusion of the meat diet. In some cases, late in the disease, a milk diet is required.

The habits of the patients must be carefully controlled. Excessive physical exercise should be forbidden. In the late forms unusual strain on the circulation must be avoided. Intense excitement, in business or in pleasure, should be shunned. Moderation in the degree and intensity of all physical and mental exercises should be invariably practiced. Many patients as they enter the stage of myocardial incapacity require absolute mental and physical rest. These patients must be kept in a recumbent position until blood-pressure can be reduced and myocardial, arrhythmic and tachycardiac symptoms are controlled. It is, indeed, very gratifying to note the good effects of such a line of treatment in cases that point to early termination in broken compensation. The peripheral circulation should be carefully protected from sudden changes of the weather. This is done by use of proper clothing.

PHYSICAL METHODS

The discussion of physical agents for the relief of arteriosclerosis, such as baths, electricity, massage, is not within the scope of this paper. The value of any one of these agencies depends on the case and the nature of the therapeutic application, the mode, frequency and degree of its administration. There are patients who have received some benefit in the matter of lowering high tension from the D'Arsonval current (high frequency) while in the hands of other therapists the benefit has been wanting. Likewise it is my experience that the use of baths, under proper limitations and skilful and prudent administration, is most helpful to the peripheral circulation and aids in the elimination of toxins from the skin, thus in both ways favoring the lowering of high tension and the arrest of arteriosclerotic changes. Rubs and massage, when properly used, may be found useful adjuncts in the general plan of treatment.

SUMMARY OF THE THERAPY OF THE CLINICAL STAGES

Incipient Stage.—Patients showing incipient arteriosclerosis should be placed on a strict diet, instructed in the nature of the disease threatening, and ordered to follow careful regimen of habit. These patients should be given antitoxic treatment, consisting in elimination, intestinal disinfection, diaphoresis, and diuresis; they should receive, when hypertension persists, the nitrites and iodids, and keep on this line for a given length of time.

After a certain period of time during which the blood-pressure is lowered, the intoxication is relieved, the kidney activity becomes normal in quantity and quality, and the symptoms of arterial spasm removed, such patients can be considered cured with assurance of permanency so long as the rules laid down for guidance are adhered to.

Cardioarterial Stage.—This is the incurable phase of this disease, but it is a stage in which therapy, properly applied and maintained, accomplishes much in the way of preventing the grave terminations and in removing many of the distressing symptoms. This point is well illustrated by a patient whom I have had under my care for six years. During this time he has had many attacks of angina pectoris. When first seen the condition was more or less intractable, but during the last year the patient has been without discomfort. These cases, often showing tachycardia, arrhythmia and gastrointestinal intoxication, should be handled with extreme caution and care. The myocardiac morbid phenomena are to be taken to be danger symptoms. Relief of the miopragic symptoms, the elimination of the intoxicants, the stimulation of kidney activity, are the chief indications. This is accomplished by catharsis, followed by nitrites and spartein sulphate, etc. With the tension lower and the skin, bowels, kidneys active, and under the restrictions of diet, the use of nitroglycerin, erythrol tetranitrate, potassium or sodium iodid, thyroid extract, regulation of habit, and general medical supervision of patient, the disease is arrested and the terminal calamities prevented.

Mitroarterial and Cardiectatic Stages.—In these stages, which merge into each other so closely as to form one continued progress to broken compensation, with dilatation of cardiac cavities and frequently orifices, lowered arterial tension, more or less visceral congestion, edema, and dropsy, are to be treated with the digitalis group, theobromin, interdiction of salt intake, restriction of diet to milk, and careful elimination of fluids. In these cases, which often appear hopeless, much can be done, nevertheless, to restore the patient to modified activity.

Note.—In addition to the references already cited, the following may be consulted:

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ABSTRACT OF DISCUSSION

Dr. George F. Butler, Wilmette, Ill.: I believe that much can be done to prevent arteriosclerosis. Eliminating syphilis as a factor, I believe that autotoxemia, or acidemia, is the principal cause of arteriosclerosis. If we test the urine early in these cases we will find that almost invariably there is evidence of intestinal fermentation or decomposition. There will be shown also, by an examination of the urine, that there is, in the majority of cases, a high degree of urinary acidity, indicating acidemia. These conditions favor degeneration of the blood vessels. Whenever the urinary acidity of any man exceeds 40, that man is on the borderline of danger. If the acidemia and intestinal decomposition can be overcome, much can be done to retard the degeneration of the blood-vessels. I think that the good success we have had with potassium iodid and sodium bicarbonate in the treatment of arteriosclerosis is due to the rapid elimination of waste products occasioned by the potassium iodid and the changing of the acid condition—not the acid condition exactly, but the acidemia—by the sodium bicarbonate. The daily use of sodium bicarbonate will lessen the urinary acidity and overcome the acidemia, while the daily use of potassium iodid serves as a powerful eliminant of toxic products. As a purely symptomatic remedy the nitrites are very valuable. I think sodium nitrite is better than any of the others; that is, I like it better, but the trouble with all of them is that their effects subside too quickly and unless the administration is kept up at frequent intervals so as to maintain a uniform dilatation of the arterioles, there is not much use in giving them. If we could get a drug which would produce dilatation of the blood vessels and if that dilatation could be maintained for five or six hours before we should need to give another dose, I think we would have the ideal vasodilator. Now it may be that some remedy like aconite or veratrum would do this, but I cannot say, as I have never used these drugs. I wish to endorse especially the dietetic treatment. Eliminate the proteids, give plenty of water. Psychic treatment should be employed for it is necessary to relieve all anxiety and worry which have a deleterious influence on the blood-vessels and heart. And, by all means, correct the acidemia and favor elimination by alkalies and potassium iodid, and overcome, if possible, gastric and intestinal indigestion and fermentation.

Dr. John N. Upshur, Richmond, Va.: After an experience of many years, I am not very hopeful along the line of cure. The difficulty is to convince a man that he is in need of treatment, the trouble is so insidious. The cause is along nutritive lines. The blood-vessels suffer from this cause—impairment of nutrition from gastrointestinal digestive disturbance, abuse of alcohol, tobacco and too rich a diet. Nervous strain is often back of the digestive disturbance, gastric motility being interfered with fermentation results and toxins are absorbed. When people are warned against these things —too rich diet, alcohol and tobacco—they simply will not believe the physician and elect to take the chances. I do not approve of the alkaline treatment, especially iodid of potassium; it is too apt to impair digestion and is not well-borne by the stomach in many cases. I prefer to treat these patients by a simple but nutritive diet—milk, buttermilk, skim milk. The irritation of the kidneys by alkaline drugs may lay the foundation for the development of nephritis. The condition comes on in the decline of life—it is a process of decay. Therefore, be cautious about drugs. In the weak heart of this condition I would commend sulphate of spartein in doses of from ¼ to ½ grain. It may be given in even larger doses I would be glad if members of the Section would try it.

Dr. Alexander G. Brown, Jr., Richmond, Va.: It is not contended in the paper that we have the hope that we will remove from the human family at one fell stroke arteriosclerosis. The purpose of the paper is to awaken in the minds of the profession the early recognition of this disease, which is a potent factor in decay, early enough to ward and to keep off decay and to prolong life. And it is with that idea in view that I recommend the administration of iodid of potassium in connection with sodium bicarbonate, for instance; not to the degree of doing harm, but to the degree in which it will do good. I hope that the members of the profession will see these early signs of breaking down and prevent them.

TETANUS DEVELOPING TWELVE DAYS AFTER SHORTENING OF THE ROUND LIGAMENTS—RECOVERY*

REUBEN PETERSON, M.D.
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In 1899 Dr. Joseph Taber Johnson reported before this section at the Newport meeting a case of tetanus following ovariotomy. The patient was operated on at his private hospital, and her death was the only one that had occurred in that institution for eighteen months. No other case of tetanus had been noted in any hospital or dispensary with which he had been connected; in fact, within his knowledge no case of tetanus had occurred throughout Washington for several years.

Twenty years have elapsed since that meeting. We have accomplished much through efforts to perfect our surgical technic. We know more about bacteriology, including the life history of the different pathogenic bacteria. The mortality and morbidity incidental to surgical work apparently has been reduced to a minimum. Even suppuration of an abdominal incision is a rare occurrence, necessitating an explanation as to causation in each individual case. Therefore, when last year tetanus developed in a patient operated on in my own institution, where the surgical technic is entirely under my control, not only was it startling, but it seemed of enough importance to warrant a thorough investigation and discussion. Let no man imagine himself so far superior to his fellow surgeons as to be exempt from complications such as this. Surely pride goeth before a fall. I am convinced now of the truth of the saying that if a man operate long enough and often enough he can illustrate in his own practice almost every surgical complication.

The case which serves as the basis of this paper is as follows:

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* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

REPORT OF CASE

The patient was single, aged 19, a student by occupation. She had suffered severely from dysmenorrhea since the establishment of her periods at the age of 13.

Operation.—The uterus was found to be somewhat enlarged and retroverted and to overcome the dysmenorrhea, curettage and shortening of the round ligaments were advised. These operations were performed at my private hospital, Nov. 17, 1908. As the uterus was freely movable, the abdomen was not opened, but the ligaments isolated and shortened within the inguinal canals through a single suprapubic incision. The shortened ligaments were held in place by catgut rendered sterile by a modified Claudius iodin method. The same material was employed for closing the inguinal canals and bringing the deeper portions of the incision together. Michel's clamps were used to coapt the edges of the skin incision.

For twelve days the patient had an uninterrupted convalescence. The stitches were removed on the tenth day and the wound found to have healed by primary union.

Postoperative Complication.—On the twelfth day the patient laughingly said that she thought she was going to have the mumps as her face was sore at the angles of the jaw and the latter seemed stiff. Parotitis, which at times follows gynecologic operations, was suspected. Examination showed no enlargement of the glands and there was no elevation of temperature. The soreness and stiffness of the jaws continued about the same for the next few days. The patient sat up on the fifteenth day for a short time. The jaws were sore and stiff, so that she ate solid food with difficulty. There was no rise of temperature or pulse, however, and the patient did not seem ill. For the next three days the patient's condition remained about the same with possibly a slightly increasing inability to open the jaws. The real nature of the disease was not suspected until the eighth day after the first complaints of stiffness about the jaws when the muscles of the back and the neck became rigid. There were sudden spasms of the muscles of the jaw, so that the patient frequently waked from a sound sleep from having bitten her tongue. As the day progressed the patient became quite excitable and for the first time the temperature was elevated, being 100 per rectum. Thoroughly alarmed at the condition of the patient and convinced that I had to deal with a case of postoperative tetanus, I sent for my friend, Dr. W. H. Hutchings of Detroit, as he had had considerable experience with the treatment of this disease by the use of chloretone. We saw the patient together about 11 p. m. December 6, the twentieth day after the operation and the eighth day since the development of the slight soreness and stiffness of the jaws. Examination at this time revealed marked trismus, the patient being able to open her jaws only enough to admit a feeding-tube. The muscles of the neck and back were rigid so that the patient could be lifted slightly from the bed by raising the head from the pillow. The abdominal muscles were rigid and somewhat painful on palpation. The patient had no difficulty in swallowing, although nourishment had to be taken through a tube. There were slight twitchings of the muscles of the face, although there was no risus sardonicus. Sudden movements about the bed, as for example the turning on of the electric light, caused contractions of the muscles of the neck and back, although opisthotonos was not present.

Treatment.—At 11:30 p. m. sixty grains of chloretone dissolved in hot olive-oil were administered per rectum. Within an hour the clonic contractions of the back muscles had ceased. The patient was much less rigid and could open her jaws decidedly more than before the administration of the antispasmodic. She expressed herself as very comfortable but very sleepy and thought she would have a good night. At 11:30 a. m. after the subcutaneous administration of 1,500 units of the antitetanic serum the patient slept until 5 o'clock when she was awakened by the spasmodic biting of the tongue. At 7 a. m. there was a return of the clonic contractions in the muscles of the back, the convulsive movements occurring from one to four minutes apart. At 9 a. m. the patient was again given sixty grains of chloretone by the rectum and at 10 o'clock another 1.500 units of antitetanic serum. After the second dose of chloretone there was no recurrence of the convulsive seizures. There was a gradual relaxation of the rigid muscles, although it was about a week before the jaws could be opened normally. Following the two large doses of chloretone the patient continued in a drowsy condition and slept a good portion of the time. Although there were no further muscular spasms, as an additional precaution, chloretone in thirty-grain doses was given daily for three successive days. Salines per rectum were given every two hours, beginning shortly after the administration of the first dose of chloretone. These injections were continued for eight days, although of necessity, because of the intolerance of the rectum, the intervals between the injections had to be gradually lengthened. However, a large amount of saline solution was absorbed during this period. The bowels were kept open, at least one free movement being secured daily.

Course of Disease.—After the second dose of the antitetanic serum, the wound was examined. It was found to have healed by primary union with the exception of a small point at the extreme right hand corner. Here was situated a minute blister, containing clear serum. Careful bacteriologic examination of this fluid failed to demonstrate the tetanus bacillus, the cultures showing staphylococci only. The patient left the hospital in excellent condition, thirty-two days after her operation and twenty days after the first appearance of the tetanus.

Now I propose to reverse the mental processes of the operator who is unfortunate enough to have a case of postoperative tetanus in his practice. After establishing the diagnosis his first thought is to save his patient; his second consideration is to ascertain the cause of the attack, so that he may guard against such an accident in the future. Hence the questions before us are:

I. What gives rise to postoperative tetanus?
II. What is the treatment of such a complication?

THE CAUSE OF POSTOPERATIVE TETANUS

By postoperative tetanus is meant the unexpected development of tetanus in an operative case, when there has been no history of traumatism, or conditions favoring the introduction of the tetanus bacillus. In other words, this definition includes cases which, barring the accidental introduction of the tetanus bacillus, would have ended in the complete recovery of the patient.

In the case just reported, the only change in the ordinary surgical technic of the hospital which up to this time had yielded gratifying results, was the use of a different kind of catgut. For years in my private work I have employed a catgut prepared by a firm which deservedly has acquired a good reputation from the quality of the gut it has placed on the market. Last year, however, it was thought advisable to have the catgut prepared in quantities by my laboratory assistant, a man well trained in pathology and bacteriology. I was loath to employ a new catgut, however, until the method and results of its sterilization had been approved by the highest authority. Therefore, before using the catgut in the hospital it was prepared and tested in Prof. F. G. Novy's bacteriologic laboratory in the University of Michigan. The mode of preparation was as follows:

A saturated solution of iodin crystals in chloroform was prepared by rubbing up in a mortar and allowing to stand for forty-eight hours. This solution was then filtered and the catgut immersed in it for eight days.

The catgut, thus prepared, was then tested as follows:

Test 1.—The coils of catgut were lifted from the containing jar with sterile forceps and from each of four coils there was excised with sterile scissors a piece from 2 to 5 cm. in length. These short pieces were allowed to stand twenty-four hours in sterile distilled water and then planted in deep bouillon tubes (20c.c. to the tube) and incubated at 37 C. for seven to fourteen days. This lot was unchanged at the end of this time save for one tube, which had been contaminated with some mould.

Test 2.—The above test was repeated with four other short pieces of catgut and after two weeks incubation only one tube was clouded. Stains and animal inoculations from this tube were negative.

From the results of these experiments I felt perfectly safe in using the catgut prepared according to this method, perhaps more so since for some years I had been using at the University Hospital practically the same catgut with the best results.

Before the development of symptoms of tetanus in the case reported the catgut had been used in quite a number of cases with the most satisfactory results, all the wounds healing by primary union and the convalescence in each case being uninterrupted.

I fear that many operators who report cases of tetanus following clean operations have fallen into the same error as did I in their attempts to absolve the catgut from any part in the causation of the disease. At first sight it seems reasonable to say it could not have been the catgut because the same material was employed in other cases with no bad results. Kuhn, however, has shown the fallacy of such an argument. He asserts that catgut is made from the intestines of sheep which exist under different conditions and vary much in health. Every catgut thread contains fibers from four or five different sheep. Just one of these fibers may contain the tetanus bacillus, while the others may be free from this particular germ. He goes on to say that the sanitary conditions in the slaughter-houses and factories from which the catgut comes are notoriously bad, exposing the raw material to all kinds of contamination. Experimentally it has been shown that it is most difficult for a sterilizing fluid to reach the interior of a catgut thread where many germs may lie. In order to insure absolute safety and do away with the possibility of postoperative tetanus, where catgut is to be used, the latter material must be taken from animals in perfect health. It must be prepared under the most hygienic conditions. Then the elementary threads should be tested for the tetanus bacillus and those found free of these organisms should be made into catgut which can be sterilized according to the most approved method.

Sterilization of catgut by boiling, while better than the use of chemical solutions, because of the possibility that the latter may not penetrate every portion of the catgut strand, has never been popular because of the difficulty of boiling the gut without destroying its integrity. It must be remembered, as pointed out by Theobald Smith, that under certain conditions, such as the formation of a pellicle or membrane over the surface of the boiled fluid, spores of anaërobic bacteria, such as the tetanus bacillus, resist repeated steamings for twenty minutes regularly, usually for forty minutes and occasionally for sixty minutes. Possibly the tests which have been employed to ascertain the asepticity of catgut, while applicable to the ordinary pathogenic bacteria, contain a source of error when used for anaërobic bacteria, like the tetanus bacillus. Are not we satisfied if the test-tubes without anaërobic conditions fail to show any growths? Implanted in the tissues, the tetanus spores, which have not been killed by the sterilization employed, develop under these anaërobic conditions and tetanic symptoms result.

Smith further on in the same article makes these statements, which are of special interest to the practical surgeon.

The great resistance of tetanus spores concerns both the practicing physician and surgeon and the laboratory worker who is engaged in the preparation of biologic products for subcutaneous administration. As regards the surgeon, I do not believe that the usual disinfection by boiling or steaming at 100 C. such as may be resorted to away from the hospitals need be placed under suspicion or discarded, but whatever has come in contact with fecal matter or with material undergoing putrefaction should be autoclaved at 110 C. to 115 C. unless the disinfective action of the boiling water in which objects are immersed is increased by alkalies and other substances.

In view of the extensive use of catgut in all kinds of surgical operations, it is of the utmost importance that the question of production of postoperative tetanus through its means be thoroughly investigated and discussed. While convinced that the postoperative course of my surgical cases is much smoother since the employment of the absorbable ligature, I would give it up at once were I convinced that my patients are liable to such a deadly infection as tetanus. One experience is enough to satisfy the most callous surgeon.

Recently Richardson has reported two cases of tetanus following operations for gallstones and for strangulated omental hernia. He has collected notes of 21 such cases in which tetanus followed a surgical operation, 20 occuring during the past three and a half years. In all these 21 cases catgut was employed, and in all except 2 the peritoneal cavity was opened. The operations were performed in Great Britain and 18 of the 21 patients died. The catgut used at the operations was examined bacteriologically in 14 cases, but these examinations were incomplete and Richardson thinks that it has not been proved that the catgut was the source of the infection. We are more interested in the number of cases Richardson has collected than in his rather fantastic suggestion that the disease from which the 18 patients died was not tetanus at all, but one of the sheep diseases, the patient being the host of the bacillus at the time of the operation. Richardson seems to base his entire argument on the geographical distribution of the cases and admits that if cases of postoperative tetanus developed in the south of England, where "looping-ill," the disease in question, does not exist, then his whole argument fails. While his argument does fail, for a search through the literature shows a wide distribution of the cases, shattering the geographical explanation of the infection beyond a shadow of a doubt, we should be under great obligation to Richardson for his collection of cases and his courage in showing this complication to be so common in Great Britain.

As an aid to the study of the various aspects of the question of postoperative tetanus, I have collected from the literature some 150 cases of tetanus following operations, in the main of a gynecologic nature. A few operations, like splenectomy, appendicitis, nephrotomy and hernia, operations which the gynecologist may be called on to do, no matter how strictly he may follow the lines of his specialty, have been included in the list. Excluding traumatic tetanus, many more cases could have been added, if general surgical operations had been included.

These 150 cases have been divided into two groups; the first, Table 1, numbering 101 cases which had occurred up to and inclusive of the year 1890; the second, Table 2, comprising 49 cases reported since 1890. Richardson's two cases were included in this last group, the other 19 cases reported by Richardson being unavailable for statistical purposes because of insufficient data. The lack of references in his article implies that the records of the 19 cases had been obtained through correspondence. If this be true, it would bring the total number of cases of postoperative tetanus since 1890 up to 70, it being remembered that these were largely abdominal and gynecologic cases, general surgical operations having been excluded.

The year 1890 has been chosen as the dividing line between the two groups, for the reasons that Phillips collected up to this date, through private correspondence and from the literature, 64 reports of cases of tetanus following ovariotomy, and because 1890 is a good date to separate the preantiseptic and antiseptic eras. For, while antisepsis had been proved to be correct in principle years before, it certainly was not generally adopted by surgeons until about this year. Furthermore, it was in 1889 that Kitasato first isolated the tetanus bacillus in pure culture and studied its biologic characters.

TABLE 1.—101 CASES OF POSTOPERATIVE TETANUS UP TO AND INCLUDING THE YEAR 1890

A. OPERATIONS INVOLVING THE OPENING OF THE PERITONEAL CAVITY

Operation.	No. Cases.	Recovery	Death.
Herniotomy	11	0	11
Hysterectomy for fibroid	1	0	1
Myomectomy	1	0	1
Oöphorectomy	2	0	2
Ovariotomy	63	5	58
Vaginal hysterectomy	1	0	1
Total	79	5	74

B. OPERATIONS IN WHICH THE PERITONEAL CAVITY WAS NOT OPENED

Operation.	No. Cases.	Recovery	Death.
Excision of breast	11	2	9
Hydrocele	3	1	2
Operations on cervix	4	2	2
Perineorrhaphy for prolapse	1	0	1
Perineorrhaphy for complete tear	1	0	1
Prolapse of rectum	1	0	1
Uterine polyp	1	0	1
Total	22	5	17

Total number of operations 101.
Recoveries, 10; 9.9 per cent.
Deaths, 91; 90.09 per cent.

TABLE 2.—FORTY-NINE CASES OF POSTOPERATIVE TETANUS OCCURRING AFTER THE YEAR 1890

A. OPERATIONS INVOLVING THE OPENING OF THE PERITONEAL CAVITY

Operation.	No. Cases.	Recovery	Death.
Alexander	2	1	1
Alexander and perineorrhaphy	2	1	1
Appendicitis	3	1	2
Colectomy	1	0	1
Herniotomy	4	1	3
Hysterectomy	10	1	9
Myomectomy	1	0	1
Ovariotomy	2	0	2
Removal of appendages	3	0	3
Removal of gall-stones	1	0	1
Splenectomy	1	0	1
Tuberculous peritonitis	1	1	0
Vaginal fixation	1	0	1
Vaginal fixation and trachelorrhaphy	1	0	1
Vaginal hysterectomy	4	0	4
Ventral hernia	1	0	1
Ventro-fixation	2	0	2
Total	40	6	34

B. OPERATIONS IN WHICH THE PERITONEAL CAVITY WAS NOT OPENED

Operation.	No. Cases.	Recovery	Death.
Amputation of cervix and perineorrhaphy	1	1	0
Epithelioma of vulva	1	0	1
Hemorrhoids	2	0	2
Lumbar nephrotomy	1	0	1
Nephropexy	1	0	1
Removal of uterine polyp	1	0	1
Trachelorrhaphy and perineorrhaphy	1	0..	1
Varicocele	1	0	1
Total	9	1	8

Total number of operations, 49.
Recoveries, 7; 14.28 per cent.
Deaths, 42; 85.71 per cen.

Before 1890, outside of the mere preparation of suture material, there were many more chances for the introduction of the tetanus bacillus into the wound than after that date, when more rational means were employed to sterilize extraneous objects. Hence only the forty-nine cases collected since 1890 were studied with reference to the suture material. The information collected was very meager and unsatisfactory. The suture material employed was mentioned in only nineteen cases: Bissell (2); Chavannoz, Coe (2); Dorsett (2); Hammond, Jerie, Koch, Martin, Meyer, Penrose, Richardson (2); Shaw, Thompson, Zacharias (21). From these cases I find that there was used:

Catgut alone	3 cases
Catgut and kangaroo tendon	2 cases
Catgut, silk, silkworm gut or silver wire in combination	8 cases
Silk alone	4 cases
Silkworm gut alone	1 case
Silk with silver wire	1 case

In only two or three of these cases are definite statements made as to the preparation of the catgut, so we are at a loss to determine whether a possible source of error lay in such preparation. That the infection is not due to catgut in all cases is proved by postoperative tetanus in 6 cases in which silk or silkworm gut was either used alone or in combination with silver wire. A former Chairman of this Section, Dr. Dorsett, has given by far the most satisfactory report of his two cases of postoperative tetanus. His two patients died from this complication after the uterus had been sutured to the abdominal wall in each instance by kangaroo tendon sutures prepared by one of the best known manufacturing firms of this country. By inoculation into mice, the kangaroo tendon was proved to be infected with the tetanus bacillus.

TABLE 3.—CASES SINCE 1890 IN WHICH ATTEMPTS WERE MADE TO ISOLATE THE TETANUS BACILLUS AND RESULTS *

No. of Case.	Where Found.	Attempts Made.	Failure.	Success.	Recovery.	Day of Death.
20	Silver suture.	1	Yes	...	...	2
55	Pus from stump (1); Pus from stump where mouse was inoculated (2).	2	Yes	...	...	2
83	Pus from abdominal wound.	1	...	Yes	...	25
45	Wound.	1	...	Yes	...	2
48	Pus from abscess in paravaginal wound; secretion from wound with catgut sutures; cerebrospinal fluid; piece of skin from edge of wound.	1	Yes	...	...	16
59	Pus from abscess found in pelvis.	1	...	Yes(?)	...	2
67	Serum from below sutured skin of wound.	1	Yes	...	Yes	..
12	Not stated.	1	Yes	...	...	3
130	Not stated.	1	Yes	...	...	†
52	Not stated.	1	...	Yes	...	12
89	Not stated.	1	Yes	...	...	†
82	Not stated.	1	Yes	...	...	2
102	Secretion from seat of ulcer.	1	Yes	...	...	2
27	Area of subcutaneous tissue from scab on skin under left scapula.	1	...	Yes	...	3
28	Pus from wound (1); Kangaroo tendons (2); catgut (3).	3	Yes(3)	Yes(1,2)	...	3
87	Unused catgut.	1	Yes	...	...	2
80	Serum from blister in wound.	1	Yes	...	Yes	..
31	Blood from finger (1); Arachnoid fluid (2).	1	...	Yes	...	3
36	One stitch.	1	Yes	...	...	2
22	Blood suture materials and dressings.	1	Yes	...	...	20
23	Blood and vaginal discharges; suture material and dressings.	1	Yes	...	...	2

* The number in column "No. of Case" refers to the number of the case in the appended bibliography.
† Not stated.

Koch was able to prove that the catgut employed was the agent through which the infection arose. While he was unable to find the tetanus bacillus or its spores within the gut, mice inoculated with the gut died of tetanus. Chavannoz, Hammond, Coe, Richardson and Zacharias made either cultures of or inoculations with the suture material with negative results.

There were only two recoveries in the 19 cases just referred to (Meyer, Zacharias). This is of no special significance, since it is about the average of recoveries (10 per cent.) after this most fatal complication of surgical operations. The difficulties of adequate bacteriologic examination of suture material after the advent of the disease will always be great. Just as in my own case, the wound may have healed by primary union and the catgut either be absorbed or difficult to get at. The tetanus is not a rapidly multiplying organism and it is exceedingly difficult to isolate it after the infection has taken place. This applies to the bacilli and the spores in the catgut as well as to the same organisms in or about the wound.

TABLE 4.—98 CASES OF POSTOPERATIVE TETANUS OCCURRING UP TO AND INCLUSIVE OF YEAR 1890

WITH SPECIAL REFERENCE TO THE ONSET AND ITS RELATION TO THE OUTCOME OF THE DISEASE

Day of onset after operation.	No. of Cases.	Recovery.	Deaths	Day of death.												
				1	2	3	4	5	6	7	8	10	11	13	20	
1	0	0	0	..	..	..	..	..	..	..	..	..	..	..	..	
2	0	0	0	..	..	..	..	..	..	..	..	..	..	..	..	
3	3	1	2	..	2	..	..	..	..	..	..	..	..	..	..	
4	4	0	4	..	3	..	..	..	..	..	..	..	..	..	..	Not stated, 1
5	6	1	5	2	3	..	..	..	..	..	..	..	..	..	..	
6	9	1	8	4	2	2	..	..	..	..	..	..	..	..	..	
7	18	0	18	3	10	5	..	..	..	..	..	..	..	..	..	
8	10	0	10	3	4	2	..	..	..	1	..	..	..	..	..	
9	9	0	9	..	1	5	3	..	..	..	..	..	..	..	..	
10	5	0	5	..	1	2	1	..	..	..	..	1	..	..	..	
11	3	0	3	..	1	1	..	..	..	1	..	..	..	..	..	
12	5	0	5	1	2	2	..	..	..	..	..	..	..	..	..	
13	6	1	5	..	..	1	..	1	..	..	1	..	..	1	..	Not stated, 1
14	5	1	4	..	..	..	1	..	..	1	..	1	..	..	..	Not stated, 1
10-15	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	
15	3	1	2	..	..	1	..	..	..	1	..	..	..	..	..	
16	2	1	1	..	..	..	..	..	..	..	1	..	..	..	..	
17	4	0	4	..	1	..	1	..	1	..	..	..	..	..	1	
20	1	0	1	..	..	..	..	1	..	..	..	..	..	..	..	
21	1	0	1	..	..	1	..	..	..	..	..	..	..	..	..	
22	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	
5th week	1	0	1	..	..	..	..	..	..	..	..	..	1	..	..	
	98	10	88													

TABLE 5.—49 CASES OF POSTOPERATIVE TETANUS AFTER 1890

WITH SPECIAL REFERENCE TO THE ONSET AND ITS RELATION TO THE OUTCOME OF THE DISEASE

Day of onset after operation.	No. of Cases.	Recovery.	Deaths	Day of death.											
				1	2	3	4	5	7	8	12	16	20	25	
1	0	0	0	..	..	..	..	..	..	..	..	..	..	..	
2	0	0	0	..	..	..	..	..	..	..	..	..	..	..	
3	0	0	0	..	..	..	..	..	..	..	..	..	..	..	
4	2	0	2	1	..	1	..	..	..	..	..	..	..	..	
5	3	0	3	..	3	..	..	..	..	..	..	..	..	..	
6	7	0	7	..	4	1	1	..	..	..	..	..	..	..	Not stated, 1
7	5	0	5	..	3	1	1	..	..	..	..	..	..	..	
8	5	1	4	1	2	..	..	..	1	..	..	..	..	..	
9	11	0	11	2	3	2	1	1	..	..	1	..	..	..	Not stated, 1
10	6	2	4	..	3	..	..	..	..	..	..	..	..	1	
11	2	0	2	..	..	1	..	..	1	..	..	..	..	..	
12	3	2	1	..	..	..	..	..	..	..	..	1	..	..	
13	1	0	1	..	..	..	..	..	..	1	..	..	..	..	
14	1	0	1	1	..	..	..	..	..	..	..	..	..	..	
16	1	0	1	..	..	..	..	..	..	..	..	..	1	..	
19	1	1	..	..	..	..	..	..	..	..	..	..	..	..	
22	1	1	..	..	..	..	..	..	..	..	..	..	..	..	
	49	7	42												

Certainly Richardson's cases, in all of which catgut was employed as a ligature, are very suggestive as to the possibility, at least, of infection through this source. My own case, in which with the same technic a change in the method of preparing the catgut was almost immediately followed by a case of tetanus, is also very suggestive. While the case is not proved, enough evidence has been advanced to make the surgeon more careful than ever as to the asepticity of his absorbable ligature. Certainly it is much easier to render other objects sterile than it is catgut. While it is possible for the infection to be carried to the wound or into the patient's body through some other avenue, in some other way, one has to admit that it is not so probable. Air, dust, water, carious teeth, the patient's skin and other sources of infection have been invoked as carriers by the different authors, but their theories have added little to our exact knowledge of the question.

RELATION OF THE NATURE OF THE OPERATION TO POSTOPERATIVE TETANUS

A study of Tables 1 and 2 will show that the complication is more frequent after operations involving the opening of the peritoneal cavity. Up to 1890 there were 63 cases of ovariotomy followed by tetanus, with 58 deaths and 5 recoveries. Thus this accident followed ovariotomy in over one-half of the cases recorded for this period, while since 1890 only two cases of ovariotomy were followed by tetanus. There would seem to be only one explanation of this decrease, namely, improvement of technic whereby more tetanus bacilli were kept out of the abdominal cavity during the second period. One can not study the reported cases without becoming convinced that, considering the many thousand of abdominal operations, postoperative tetanus is a very rare complication. Modern abdominal surgery exacts such good results from the surgeon, however, that he finds but little consolation from the improvement of general statistics, if he be so unfortunate as to have a case of postoperative tetanus in his own practice. As will be seen by the tables, almost every gynecologic operation has been followed by tetanus. The complication more frequently followed operations involving the opening of the peritoneal cavity. But this is also true of any infection. The variety of abdominal operations followed by tetanus has naturally increased since 1890, on account of the development of new operations since that date. But the ratio between the cases of infection in the peritoneal and non-peritoneal operations is about the same before and after 1890. The natural inference is that since tetanus is a complication of nearly every kind of gynecologic operation the nature of the operation is not a determining factor in its production.

PERIOD OF INCUBATION OF POSTOPERATIVE TETANUS

Lambert, in speaking of tetanus in general, states that the prognosis is "in direct ratio to the shortness of the the incubation period and to the rapidity and intensity of the symptoms." In Table 4, 98 cases have been tabulated according to the onset of the symptoms, the outcome of the cases and the day of death in relation to the day of onset. No patient in this tabulated list received antitoxin, so it serves as a basis of comparison between the value of the two modes of treatment, when antitoxin is administered after the onset of symptoms. Table 4 shows that in 64 out of 98 cases, or in practically two-thirds, the initial symptoms were within the first ten days. In the remaining 34 cases, the onset of the disease varied from the eleventh to the twenty-second day. There was one anomalous case in which there was a five weeks' incubation period, but such cases are unusual and always open to suspicion.

In Table 5, or in the 49 cases after 1890, there were 39 in which the first symptoms appeared within the ten-day period, or practically four-fifths of the cases, figures corresponding to Joseph Jones' statistics as given by Osler. In the remaining ten cases the initial symptoms are recorded as appearing from the eleventh to the twenty-second day.

RELATION OF ONSET OF SYMPTOMS TO DAY OF DEATH

This is irrespective of the treatment administered, although again it must not be forgotten that no antitoxin was administered prior to 1890. Looking at the cases starting within the first ten days, as tabulated in Table 4, we see that up to the ninth day in 50 out of the 98 cases, the patients died on or before the third day. After the tenth day there was not one patient out of the 18 who died on the first day of the disease, the deaths being scattered from the second to the twentieth day. Practically about the same showing is made in the cases occurring after 1890, Table 5. Up to the tenth day the patients died quickly, only a few living beyond the fourth day of the disease. Those with a longer incubation period lived the longest, one even living to the twenty-fifth day. Thus these tables would seem to bear out the claims of various writers, that the shorter the incubation period the more virulent and active is the disease, and, conversely, the longer the period of incubation the milder the disease, or the longer can the patient survive before a fatal issue.

Not a single case of tetanus developed during the first two days after the operation, and in Table 2 no case appeared until the fourth day. In the 98 cases occurring before the year 1890 the maximum number of cases (18) is recorded as developing on the seventh day, while in the 49 later cases the greatest number (11) developed on the ninth day.

TREATMENT

The treatment of tetanus may be summarized briefly as follows:

1. By proper disinfection and drainage at the point of entrance of the tetanus bacilli, we should prevent, as far as possible, further development of bacteria and the absorption of the elaborated toxins.

2. The toxins in the blood which have not united with the nerve cells should be neutralized and rendered inert by the administration of antitetanic serum.

3. The muscular spasms should be controlled by some antispasmodic.

4. Elimination of the poison already absorbed is best obtained by free catharsis and the administration of large quantities of physiologic salt solution.

1. *Disinfection and Drainage.*—As has been pointed out, this is much more difficult as a rule in postoperative than in traumatic tetanus. The tetanus bacilli may have been implanted on the peritoneum, or may be in the ligature with which a pedicle was tied. There may be no evidence, as far as the wound is concerned, that tetanus bacilli or their spores are present. In many instances it would be obviously jumping in the dark to open up the wound and drain. Yet when the latter suppurates or the proper indications exist, disinfection and drainage should be employed in postoperative as well as traumatic tetanus.

For example, in the case reported, it would have been foolish to reopen the wound, which practically had healed by primary union, when it was not at all certain where the infection had entered. If the wound had suppurated, however, the indications would have been for its early opening, disinfection and drainage.

TABLE 6.—49 CASES OF POSTOPERATIVE TETANUS AFTER 1890

SHOWING EFFECTS OF ADMINISTRATION OF ANTITETANIC SERUM

Day of onset after operation.	No. of cases.	No. of cases having anti-tetanic serum.	Recovery.	Death.	No of cases *not* having serum.	Recovery.	Death
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	2	1	0	1	1	0	1
5	3	2	0	2	1	0	1
6	7	3	0	3	4	0	1
7	5	4	0	4	1	0	1
8	5	4	1	3	1	0	1
9	11	9	0	9	2	0	2
10	6	6	2	4	0	0	0
11	2	2	0	2	0	0	0
12	3	3	2	1	0	0	0
13	1	1	0	1	0	0	0
14	1	0	0	0	1	0	1
16	1	1	0	1	0	0	0
19	1	1	1	0	0	0	0
22	1	1	1	..	..	..	..
	49	38	7	31	11	0	11

TABLE 7.—TIME OF BEGINNING OF TREATMENT BY ANTITOXIN IN 34 CASES

SHOWING RECOVERIES AND DEATHS

Day of beginning antitoxin treatment after onset of tetanus.	No. of cases.	Recovery.	Death.
1	24	5	19
2	6	1	5
3	2	1	..
5	1	..	1
7	1	..	1

In 6 cases in which the patients recovered the tetanic symptoms appeared on the tenth day after the operation or later.

2. *Administration of Antitetanic Serum.*—It seems to be pretty well established that after the toxins have become fixed in the nerve cells, the administration of antitetanic serum has but little influence on the course of the disease. The injury has already been accomplished and the most that the serum can do is to prevent further combination with the nerve cells. For this purpose and because its proper administration is harmless, it should be given in every case, immediately on the onset of symptoms. Inasmuch as postoperative tetanus is never anticipated, the prophylactic use of the serum has no place in the class of cases under discussion. A comparison of Table 1, in which 101 patients were treated without the antitetanic serum, with Table 6, in which 38 patients out of the 49 were treated with the serum, shows a diminution of the mortality under the use of the serum from 90.09 per cent. to 81.58 per cent. This is not much of a showing; still it is a decided gain. In the 11 cases in which no serum was employed, there was not a single recovery. The good results of the serum may have been due partly to the fact (Table 7) that in 24 of the 38 cases, its administration was begun on the first day of

the appearance of the symptoms. On the other hand, in 6 cases in which the administration was begun on the second day there was only one recovery.

It must not be forgotten, however, that whenever we consider the efficacy of any particular form of treatment we must also consider the severity of the symptoms in the cases under treatment. Thus, the good results may not have been so much due to the antitoxin as to the fact that the cases were of a mild type and the patient might have recovered under any form of treatment. Hence the significance of the note at the bottom of Table 7, which states that in six of the seven patients recovering, the tetanic symptoms appeared on the tenth day after the operation or later.

3. Control of Muscular Rigidity and Spasms by the Use of Antispasmodics.—The list of drugs used for this purpose is large and has not been particularly satisfactory. Opium, chloral hydrate, the bromids, calabar bean, chloroform, etc., have each been tried with varying success. The objections to the use of many of these drugs are that, while they partially control the spasms, they prevent elimination and deprive us of a most necessary form of treatment.

The subarachnoid injections of magnesium sulphate, as first suggested by Meltzer, undoubtedly control the spasms, but respiration is so inhibited at the same time as to make it questionable whether the treatment may not prove worse than the disease.

As regards the use of chloretone, I can only say that it has proved most efficacious in the hands of Dr. Hutchings, who has absolutely controlled the spasms in six cases, while as far as could be judged no bad symptoms developed from the use of the drug. Certainly the effect of chloretone in the case reported above was most satisfactory. The muscular spasms were absolutely controlled after two sixty--grain doses and the muscular rigidity practically abolished. At least, since the drug is harmless, chloretone is worthy of an extensive trial in tetanus and other spasmodic conditions.

4. Elimination Through Free Catharsis and the Use of Salt Solution.—The elimination of the poisons in the body is especially demanded in a disease like tetanus. The tissues may interfere with the administration of cathartics, but in that case they may be introduced through the stomach-tube, after the relaxation has been accomplished through chloretone. Fortunately salt solution can always be administered, either intravenously, subcutaneously or per rectum, the method being determined by the condition of the patient.

CONCLUSIONS

1. While tetanus can not be said to be a very frequent postoperative complication, a study of the reported cases shows it does occasionally follow all kinds of gynecologic operations.
2. It most frequently is a complication of operations involving the opening of the peritoneal cavity, although in quite a percentage of cases it complicates plastic and other non-peritoneal operations.
3. The infection in all probability is introduced at the time of operation.
4. It has been proved that the tetanus bacillus and its spores are most difficult to kill, and that under certain circumstances they survive boiling for sixty minutes; hence when this organism is present more than ordinary heat, applied over a longer time, is necessary.
5. Absorbable ligatures, like catgut, may be carriers of the infection, unless the most approved methods of sterilization be employed.
6. The process of manufacture of the catgut renders it peculiarly liable to infection by the tetanus bacillus, which may not be destroyed by the ordinary methods of chemical sterilization.
7. The initial symptoms of postoperative tetanus appear within ten days in from two-thirds to four-fifths of the cases. The onset of symptoms in the remaining cases varies from the eleventh to the twenty-second day after the operation.
8. In the 150 cases tabulated no case showed symptoms of tetanus the first two days after the operations.
9. From a study of these cases it would seem that the average period of incubation for postoperative tetanus was about eight days.
10. The shorter the incubation period the more virulent and active the disease, and, conversely, the longer the incubation the milder the disease or the longer is it possible for the patient to survive before a fatal issue.
11. Whenever possible the point of entrance of the tetanus bacilli should be ascertained and the proper disinfection and drainage be instituted. This is often difficult in cases of postoperative tetanus.
12. Antitetanic serum acts on the free toxins in the blood, but has no effect on the toxins after they have become fixed in the nerve cells.
13. A study of the tables shows that the mortality of tetanus has been reduced nearly 10 per cent. through the use of the antitetanic serum.
14. The best effects of the serum will be seen when its administration is begun on the first appearance of the symptoms of the disease.
15. Chloretone is able to control the muscular spasms of tetanus and to do away with the muscular rigidity. It is harmless and does not prevent elimination.
16. In tetanus, elimination through free catharsis and the administration of salt solution is of the utmost importance.

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ABSTRACT OF DISCUSSION

DR. W. B. DORSETT, St. Louis: In the consideration of this subject, whether it is kangaroo tendon or catgut, we ought to consider the size of the material used; for any size above No. 3 is liable to have in the center of the strand the infectious material. In other words, the manufacturer of this gut will admit that it is harder to sterilize a large strand than a small strand. Experiments have been made in which the gut has been suspended in anilin dye and sections taken showed that the anilin dye does not always penetrate to the center. The unfortunate cases that I have had prove rather conclusively that the infection did not occur from the catgut that was used, but from the kangaroo tendon. This was of a large size and the postmortem showed that it contained the tetanus bacillus and the spores. At that time I had quite a supply of suture material that I had obtained from the manufacturers. Immediately after a second case occurred I telegraphed them to call in all the gut that they had sent out and that the kangaroo was probably infected. I got no response until the agent came to St. Louis for the purpose of disposing of his material and he then found that it was not wanted in the instrument houses. Chloretone is new to me. The antitetanic serum in my opinion should be used as a prophylactic rather than as a remedy after the disease has once shown itself. So much impressed have been some of my friends who do general surgery with the use of antitetanic serum, that as soon as a punctured wound is discovered in persons working about stables or coming in close contact with street dirt, the serum is used as a prophylactic before anything else is done. In my two cases it had no effect as it was not used in time, and the chloroform was used simply to control the spasms.

DR. RALPH WALDO, New York: I have seen four of these cases. Three followed abdominal operations. The material used as suture and ligature was catgut of rather large size for the adnexa which were removed. In one case a large ovarian tumor was removed. The more superficial portions of the wound were closed with silkworm gut. Whether the infection was due to the fact that the catgut was of rather large size I am unable to say. In two of these cases I performed several operations in the same operating-room at the same hour with the same assistants and using the same material. From the tenth to the twelfth day the first slight symptom appeared in the neck. No notice was taken of it until about the thirteenth or fourteenth day. The most exhaustive bacteriologic examinations were made of the catgut and everything else possible with a negative result. I speak now of three of the cases. I went very carefully into the serum question and became thoroughly convinced that if the serum was given after the disease had developed it was useless in a very large percentage of cases. My laboratory friends had used it in guinea-pigs and found that if it were used as a prophylactic the disease was prevented. If it were used after the symptoms developed, as much serum were required as the guinea-pig weighed in order to counteract the toxin. For this reason its use was impracticable. In another case a patient with uterine hemorrhage was given a hypodermic of ergot supposed to be sterile. She was brought to the hospital in the ambulance and later developed tetanus. We found a little bleb where the hypodermic had been given. This was opened and found to be full of the germs of tetanus, proving that the disease was caused by the hypodermic, whether the germ was on the skin or on the needle no one knows. In three other cases we were absolutely unable to determine anything concerning the entrance of the germs.

DR. W. H. HUTCHINGS, Detroit: The question of postoperative tetanus is so large that it cannot be given full consideration in the time at our disposal. However, I desire to call attention to the fact that surgeons, when anything goes wrong, are altogether too ready to blame catgut. They forget that catgut can be sterilized, no matter how large it is, and forget that the patient's skin and their own hands are not so easily made sterile. There are undoubtedly cases in which the catgut has been the cause of tetanus and quite as many cases in which the catgut has been sterile, and cases in which catgut was not used at all. Unfortunately, Dr. Peterson had no cultures made, so we do not know whether his cases were those of tetanus or not. The question of treatment is a very important one. As Dr. Peterson says, the mortality is about 80 per cent. It has been lowered somewhat. For several years I have been conducting a series of experiments on sheep to study the methods of treatment that have won any recognized place. An important statement was made in a paper by Dr. Matas, at the recent meeting of the American Surgical Association, calling attention to the fact that often tetanus spores are taken into the body with salads and fruits, and eliminated in the feces, and that a large percentage of postoperative tetanus is found in cases in which the parts have been contaminated in that way; notably in the operation with clamp and cautery in hemorrhoids. I have become convinced that the best way to control the manifestations of the disease is by the use of chloretone. For the cure of the disease we must remove the source of the manufacture of the toxins. The toxins in the body are better neutralized by the antitoxin if it is used intravenously, though the antitoxin has no effect whatever if the toxins are already in contact with the nerve cells. The first problem is to keep the patient alive until the toxins can be overcome. I have treated six tetanus patients with chloretone for the control of the convulsions and have cured five of them. One was a case of abortion induced by curettement in which tetanus developed in six days. One case was a Fourth-of-July accident. Another case was that of a man who had a severe crushing injury to the hand. Several operations were done but the flaps sloughed and tetanus developed. Another case developed from fracture of the elbow. The man could not swallow. The serum was given and he was also given large doses of chloretone. He was so completely relaxed that all one night a nurse had to sit by the bed to hold his jaw forward so that he could breathe. Chloroform kills by paralysis of the center of respiration. Chloretone will control the convulsions, but that is all it will do. It is comparatively harmless. In one case a man took a large dose with suicidal intent. He slept for a week, woke up, and said he felt perfectly well.

Dr. H. J. Boldt, New York City: I have been unfortunate enough to lose two patients as the result of tetanus. An examination of the catgut gave a negative result. Then I had some catgut from the same manufactory infected with tetanus and anthrax bacilli. The catgut was untwisted and the infection made in the center of the gut, which was No. 3. The tubes were sealed in the presence of the bacteriologist. The manufacturer then put them through the same process as all the other catgut underwent, and it was then returned to our bacteriologist. A careful examination was made and it was found to be absolutely sterile. So that settles the question that my patients did not die from infection in the catgut. One case was a large ovarian tumor; the other a large fibromyomatous uterus.

Dr. W. H. Hutchings: Regarding the work of Wassermann, I should like to call attention to the fact that Villard has reported thirty-one cases of undoubted tetanus following the prophylactic use of serum.

Dr. C. C. Frederick, Buffalo: I want to report a case of postoperative tetanus, the only one I ever had, which occurred in my hospital last September. It was a perfectly clean case of myofibroma for which I did supravaginal hysterectomy, the wound closing by primary union. The patient developed tetanus on the sixteenth day. I was doing a lot of work at the time. I have continued to use the catgut prepared by the iodin method. I operated on three patients on the same day that this woman was operated on and the others did not develop tetanus. I suppose that my catgut might have been the cause, though I doubt it very much. This patient did not develop tetanus until the sixteenth day after operation. The largest catgut used was No. 2. About five days prior to the beginning of the tetanus the woman had an attack of acute indigestion with diarrhea, furred tongue, elevation of temperature, etc. After two days with catharsis and withholding of food she recovered. The woman was very fond of fruits and vegetables. The attack occurred in September at a time when she was eating a great many of these things, and I have an idea that she was infected from the intestinal tract.

Dr. Reuben Peterson, Ann Arbor: In the time permitted I could only read my paper in abstract. About everything brought out in the discussion appears in the body of the paper and I would refer those interested to the paper itself. I am not trying to prove anything at all. I would much rather not have it proved that catgut is the source of infection. After a period of seven or eight years with the use of one catgut I changed to another sterilized by a different method and this case of tetanus developed. That is enough proof for me so far as my own surgical practice is concerned. It is difficult to prove that the catgut is at fault. It has been shown that only one fiber of the catgut need be infected. Such infection cannot be very common, because if it were, we would get all sorts of infections throughout the world when so much catgut is being used. If I have pointed out the possibility of tetanus following clean operative cases and shown the importance of careful supervision of the sterilization of catgut, I shall have accomplished my purpose. Of course we know the value of the serum as a prophylactic measure, but it must be remembered that we do not give all our operative patients antitetanic serum lest they have tetanus. The serum does neutralize the toxins as Dr. Hutchins has pointed out, and therefore should be used in the treatment in every case. Very seldom, I think, does tetanus develop from infection on the hands. If we look at the different methods of sterilization of hands, instruments and of all materials connected with the operation and see how few cases of tetanus develop, it must be very rarely that the source of infection is there. However, the infection is much more common than one thinks, as evidenced by the twenty cases of Richardson and the fifty cases since 1890 which I have collected. Chloretone, of course, is used merely as an antispasmodic, and is much safer and more effective than chloral or other drugs which have hitherto been employed. It acts so beautifully in relaxing the muscular spasm that I would advise any one so unfortunate as to have a case of tetanus, postoperative or otherwise, to give it a fair trial. It was extremely gratifying to note the relaxation of the muscles and the ability of the patient to open her jaws, following a dose of 50 grs. of chloretone.

CAUSES OF FAILURE IN THE TREATMENT OF CANCER OF THE LIP

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The frequency with which recurrent and far-advanced cases of lip cancer have of late come to my notice has induced me to study the causes of failure in the treatment of lip cancer and to present the principal findings in this short paper, trusting that some fact might be brought forward which would impress on the profession the importance of early recognition and radical excision of the disease. I am confident that in many cases the patient's refusal to accept the advice of the medical attendant is responsible for the distressing results; in a few cases the disease is not recognized until a mutilating operation is necessary, while in other instances the surgeon has limited the operation to mere excision of the palpable growth. The secret of success in the treatment of lip cancer lies (1) in early recognition of the disease —recognition before the glands are palpably enlarged— and (2) in excision of the lymphatic glands and periglandular tissue of both sides of the neck, together with the primary growth.

In many of the early cases the treatment advocated will seem somewhat too radical. Experience, however, has demonstrated that the size of the ulcer can never be trusted to indicate the degree of spread in the parts beneath. It is equally true that the glands of the neck may be enlarged and yet not contain cancer cells. Wartmann found infection of the lymph glands in eighty-four of his one hundred collected reports of cases. Loos believes that it may occur as early as the third month after the commencement of the disease, although in one of Wartmann's cases the glands were involved at the sixth week.

Cheatle has found that there are three anatomic conditions which complicate the spread of cancer of the upper lip: 1. The early spread to the alveolar margin of the upper jaw, particularly when the disease begins or spreads into the central part of the lip. 2. When cancer begins in the upper lip, the columella is earlier invaded than the alæ nasi. 3. The cutaneous muscles of the upper lip are not less important in conducting the spreading disease than the cutaneous muscles elsewhere in the face.

Since the lymphatics of the lip empty into the submentals and glands seated in the submaxillary fossa, the findings of Stieda are important. Stieda has found that the glands seated in the submaxillary fossa are in most instances to be found at three perfectly determined points. The median is in relationship with the facial artery and is situated between the lower border of the lower jaw and the submaxillary gland. The anterior gland, which is the smallest, is to be found on the border of the anterior belly of the digastric, in front of the mylohyoid and beside the submental vessels. The posterior is situated at the posterior aspect of the submaxillary gland. A larger number of glands may be present. The submental glands are equally important; they are represented by all the glands which are to be found between the chin and the hyoid bone, between the anterior bellies of the digastric. The lymphatics of the upper lip not only empty into the glands already mentioned, but also into the superficial cervical as well; they are four to six in number, and are disseminated along the external aspect of the sternocleidomastoid, along the posterior border of the muscle and in the lower part of the subclavicular triangle. They are grouped around the external jugular vein and are covered by the superficial cervical fascia. The deep cervical glands also receive the lymphatics of the lips. Princetaux found that the lymphatics of the upper lip may pass through a buccinator group (which was present in ten of thirty-two cases) before emptying into the submaxillary glands.

Handley has recently attempted to establish the unrecognized law that every aggregation of carcinoma cells has a definite life-cycle, and, after increasing in size for a varying period and at a varying rate, tends spontaneously to undergo degenerative and fibrotic changes. He believes that the natural history of cancer is one of centrifugal growth followed by centrifugal death. His researches have shown that the permeation of a lymphatic is normally followed by a curative process of fibrosis. The cancer cells, which at first fill the lymphatic without distending it, by their continued proliferation finally burst the tube of endothelium within which they are enclosed. Around the split lymphatic some extravasation of blood usually takes place, and a dense aggregation of lymphocytes appears. Soon the lymphocytes are replaced by young fibrous tissue, which forms an adventitious sheath for the cylinder of cancer cells set free from the burst lymphatics. This newly formed fibrous tissue contracts on the degenerate cancer cells and they ultimately disappear. The original lymphatic is now represented by a solid thread of fibrous tissue, and the process of natural cure is locally complete. In carcinomas whose cells possess a high degree of proliferative power the life of the patient is destroyed while the cancer is still in the early stages of its life-cycle. At the other end of the scale, in carcinomas of low proliferative power, the patient may possibly survive the carcinoma.

Microscopic studies have shown that the lymphatic vessels proceeding from the affected area to the lymphatic gland, as well as the vessel leading from such a cancerous gland, may also contain cancer cells.

Bonney has recently established the new and important fact that a local increase in the cellularity of the subepithelial connective tissues, accompanied also by a destruction of the elastic tissue, invariably precedes the appearance of a carcinoma.

The one point that I want to emphasize in the diagnosis of cancer of the lip is the fact that every fissure or crack of the lip in a middle-aged person which refuses to heal or which heals and reopens repeatedly should be regarded as a beginning cancer. In all doubtful cases the lesion should be excised and subjected to microscopic examination. The common practice of treating these lesions with salves and powders, or by cauterization until a mere tyro could make the diagnosis, is to be deplored.

The mortality from cancer of the lip is not infrequently the mortality of inefficient treatment and delay. With early recognition of the disease and proper treatment the mortality should not be more than 2 per cent. In 1889 Roger Williams studied 100 cases of lip cancer admitted to Middlesex Hospital and found that in 19 fatal cases the total duration of life, dating from the time when the disease was first noticed, averaged 37.7 months; in 7 cases, in which no operation was done, the average duration was 16 months, while in 12 cases with operation the average duration of life was 50.5 months. In 46 recurrent cases Roger Williams found that the average interval between the first operation and the first obvious recurrence in 41 cases was 20 months; in 13 of the 46 cases the initial seat of the recurrence was in the adjacent lymphatic glands, while in 33 it was at or near the primary seat of the disease.

In 1903 Crile collected reports of 535 cases of lip cancer, with operations prior to 1885. The operative mortality was 8 per cent.; recurrence, 37 per cent.; three-year cure, 27 per cent. In 1898 Loos collected 260 cases, with operations since 1885. The operative mortality was 6 per cent.; recurrence, 30 per cent.; three-year cure, 65 per cent.

In 1896 the American Surgical Association, realizing the inefficacy of simple V-shaped excision of the growth on the lip, undertook to find what further steps could be taken in the operative technic for the cure of the disease so as to prevent recurrence. After careful study and investigation the association advocated excision of the glands in the submental and submaxillary regions.

In the light of Handley's investigations and the extensive experience, the treatment of cancer of the lip is clear. The secret of success lies in early and complete removal of the growth on the lip and of the glands of the submental and submaxillary fossæ. Everything must be done at the primary operation. The technic which seems best is as follows: For two or three days before operation the patient is given mouth-wash and the teeth cleansed three times daily. Under ether anesthesia a collar incision is made and the glands in the submental and submaxillary regions, together with the adipose tissue, are excised. Drainage through two small supplemental incisions is provided for. The wound is then sutured and protected with gauze pads, which latter are held in place by an assistant while the growth on the lip is being removed and the parts sutured. In my own cases the entire wound surfaces are swabbed with Harrington's solution and then with salt solution before being sutured. The drains are removed on the second day. The patient is permitted to leave his bed on the fourth day.

In a recent monograph attention was called to the value of Harrington's solution in the prevention of cancer cell implantation. It is not to be inferred that Harrington's solution is brought forward as a substitute for radical removal of all of the diseased tissue. On the contrary, it is offered as a valuable adjunct in preventing liberated cancer cells from developing into cancerous growths in the operative wound. At this time I wish to caution against applying the solution too long. Experience has convinced me that it is best applied by means of a gauze sponge wrung out in the solution. The sponge should be applied to the entire wound area. The operative field quickly assumes a brownish-blackish appearance. A small rubber tissue drain should be placed in the lower angle of the wound. The drain is removed at the end of thirty-six hours.

The following conclusions seem warranted:

1. The causes of failure in the treatment of cancer of the lip are (1) late recognition of the disease, (2) the patient's refusal of early operation, and (3) incomplete operative technic.
2. The common practice of treating cases of persistent "fissure" or "crack" of the lip in a patient 30 years of age or over, with pastes, caustics or powders, is to be deplored. The fissure or crack should be excised and immediately subjected to microscopic examination.
3. The secret of success lies in early recognition and prompt excision of the growth, together with contents of submental and the submaxillary fossæ. The character and completeness of the primary operation determine the success or failure of the treatment.
4. Moles and warts, especially when so situated that they are subjected to more or less constant irritation, should be excised, lest they become malignant.

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THE ASSOCIATION OF AORTIC INSUFFICIENCY WITH SYPHILITIC AORTITIS [*]

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During the last few years our attention at the Pennsylvania Hospital has been very forcibly directed at autopsy to the frequent association of a peculiar type of arteriosclerosis, namely, mesaortitis, with a chronic aortic endocarditis, which gave rise to aortic insufficiency. The combination of these two lesions seemed so significant and was so striking that a systematic study of the autopsy material was undertaken to determine exactly how common the occurrence was; and in this paper a brief summary of the findings will be given.

For some years mesaortitis has been recognized by the school of Heller as a unique form of arteriosclerosis, but more recently the condition has been made especially familiar and its connection with syphilis emphasized by the studies of Marchand,[1] Benda[2] and Chiari.[3] Chiari pointed out in 1903 that mesaortitis was very common in syphilitics. In his series of twenty-seven cases of undoubted syphilis, mesaortitis was found sixteen times, and in forty-four cases of paresis it occurred in 47 per cent. Marchand, at the same time, drew attention to the constant association of mesaortitis with aneurism of the aorta and believed that, though this type of aortitis might not be specific for syphilis, was yet almost always caused by syphilis when it occurred in young people. Since the appearance of these papers the condition has been extensively studied and is now generally recognized as a type of sclerosis differing in appearance and etiology from the more usual form of sclerosis termed endarteritis deformans.

Evidence, too, has been rapidly accumulating to show that mesaortitis is due, at least in many cases, to syphilis. A similar lesion has been found by Wiesner[4] and Klotz[5] in the great vessels of infants and fetuses that were the subjects of congenital syphilis. Most important of all in this regard are the reports of Reuter,[6] Benda,[7] Schmorl[8] and Wright,[9] who have been able to demonstrate spiral organisms indistinguishable from *Spirochæta pallida* in mesaortitis in adults. It is interesting to note in Wright's excellent and convincing report that chronic aortic endocarditis was present in all of the five cases in which spirochetes were present in the wall of the aorta.

In a series of 930 autopsies at the Pennsylvania Hospital twenty-one cases were found in which chronic aortic endocarditis, unassociated with lesions of any of the other valves, occurred in connection with mesaortitis. In these twenty-one cases the lesions in the aorta varied somewhat in extent in the individual instances, but was always *confined, and often very sharply localized*, to the arch of the aorta. Occasionally it extended for only 5 cm. above the aortic cusps. The margin of the sclerotic area was very abrupt, while the aorta beyond was quite smooth. In the least extensive areas there were patches of thickening two to three cm. in diameter. The central portion was elevated, gray and somewhat succulent in appearance, while the margins were yellowish and crinkled. The sclerosis, when more extensive, was characterized by an irregular, corrugated or crinkled thickening of the wall, showing small pits and sometimes minute, aneurismal sacculations. Often the bases of these small aneurisms were so thin that they transmitted light. There was no calcification except in one instance, but rather a rubbery, pliable thickening. In four cases the arch of the aorta was the seat of large aneurism formations.

The valves showed the same rubbery thickening when extensively involved, and occasionally there were crescentic lines of whitish yellow thickening on the endocardium of the ventricle beneath the valves.

Microscopically these aortas showed even a more characteristic appearance than they did to the naked eye. The intima presented various grades of thickening, due to the heaping up of cells of the connective-tissue type, but there were no marked degenerative changes and no calcification. The principal alterations were present in the media. Here there were, in the great majority of instances, areas of necrosis in which both muscular and elastic elements were completely destroyed, while with occasional giant cells accumulations of small round cells and plasma cells were sometimes arranged about the necrotic areas. Usually blood-vessels, surrounded by these same types of cells, were seen penetrating from the adventitia far into the media toward the thickened intima. In other instances the media was the seat of old scar-like areas containing blood-vessels and the connective tissue was richly infiltrated with plasma cells and small round cells. In such places the elastic fibers of the media, as could be shown by Weigert and Verhoff stains, were entirely destroyed and the adventitia and thickened intima were connected by the vascularized scars. In the oldest lesions the media was represented simply by slightly cellular bundles of connective tissue. The adventitia likewise was the seat of definite changes. Here the connective tissue was increased; collections of small round cells were present, situated especially about blood-vessels. the arteries were frequently the seat of an extensive endarteritis and the walls of the veins thickened.

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[*] Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Marchand: Verhandl. d deutsch. path. Gesellsch., 1903, p. 197.

[2] Benda: Verhandl. d. deutsch. path. Gesellsch., 1903, p. 164.

[3] Chiari: Verhandl. d. deutsch. path. Gesellsch., 1903, p. 137.

[4] Wiesner: Centralbl. f. Path. u. path. Anat., 1905, xvi, 822.

[5] Klotz: Jour. Path. and Bacteriol., 1907, xii, 11.

[6] Reuter: München. med. Wchnschr., 1906, liii, 10, 778; Ztschr. f. Hyg. u. Infectionskrankh., 1906, liv, 49.

[7] Benda: Berl. klin. Wchnschr., 1906, xliii, 989.

[8] Schmorl: München. med. Wchnschr., 1907, liv, 188.

[9] Wright: Boston. Med. and Surg. Jour., 1909, clx, 539.

In three cases in which the valves themselves were studied microscopically this process was seen to extend to within a short distance of their attachment. At the fibrous ring there was increase in connective tissue. and blood-vessels could be seen extending from this region, while into the thickened valve near them accumulations of small round cells and plasma cells infiltrated the fibrous tissue of the ring. The valves themselves were thickened by the formation of fairly cellular connective tissue, and near the bases, two valves were infiltrated with clusters of small round cells and plasma cells.

From this brief description it may be seen that the lesions in the aorta in these cases were quite characteristic of aortitis as it has been described by others. The process, moreover, could be traced along the wall of the aorta to the aortic cusps and, though, by reason of their structure, one could not expect to see the same type of lesion in the valves, still it was possible to determine that certain of the features characterizing mesaortitis were present here. The extension of blood vessels and groups of small round cells and plasma cells from the fibrous ring into the base of the leaflet, as well as the presence of small groups of these cells in the substance of the valve itself, was quite striking in at least one case, and, though this is not, by any means, sufficent to characterize the lesion in the valves as specific, still it does suggest that the agent which produced the chronic inflammatory and proliferative changes in the wall of the aorta had some part in the disease of the aortic valve.

It is quite evident, too, that lesions of the aortic valve accompany mesaortitis with great frequency. for in another series of thirty-seven cases of mesaortitis, in which special attention was paid to the lesion in the aorta, chronic aortic endocarditis with insufficiency occurred thirteen times, or in 35.1 per cent.

In the series of twenty-one cases under consideration all but three of the subjects presented definite signs of aortic insufficiency during life. In one case, a man who died shortly after admission to the hospital from epidemic meningitis, no cardiac murmurs were heard, and in two other instances only apical systolic murmurs were noted at the physical examination. Most of the individuals were middle-aged or young. In 17 cases the patients were under 50, in 11 under 40 and in 6 between 20 and 30 years of age. Fifteen of the patients were men, 6 were women; 14 were colored and 7 white. In 11, or a little over half, there was a definite history of syphilis or syphilitic lesions (gummata) were discovered at autopsy. In the remaining 10 cases the possible occurrence of syphilis was not noted in the history.

Although a history of rheumatic fever was obtained in a few instances, it was, on the whole, rather conspicuous by its absence. In 8 cases it was stated positively that the patient had not had rheumatism; in 3 cases there had been "rheumatic pains," and in 3 cases there was a definite history of rheumatic fever. In 6 cases the history was not taken with sufficient accuracy to determine whether or not the patients had had rheumatism.

To determine the relative importance of the association of mesaortitis with aortic insufficiency it was necessary to compare these twenty-one cases with all the other cases of chronic aortic endocarditis, and particularly with those cases which were associated with endarteritis deformans and calcification of the aorta.

Including the above group, 76 cases of chronic aortic endocarditis were found in the 930 autopsies.

In twenty-one of these cases the aortic valves were affected in combination with the mitral or tricuspid valves, and frequently an aortic insufficiency was combined with mitral stenosis or mitral insufficiency. In most of these 21 cases the disease occurred in young people and in a large proportion the disease could almost certainly be ascribed to rheumatic fever. Since this group of cases in which there are combined lesions of the mitral, aortic and often tricuspid valves is perfectly familiar, the subject needs no further discussion. Suffice it to say that the aorta in every instance was smooth and delicate in appearance, so that the possibility that a sclerosis might have had some effect in bringing about the lesion of the aortic valve is effectually excluded.

In the remaining thirty-four cases of chronic aortic endocarditis in which there was no mesaortitis, the aortic valves alone were affected and showed changes varying from a moderate thickening to a marked thickening, stiffening and calcification. In all but nine of the cases there was sclerosis of the root of the aorta, consisting of patches of yellow thickening of the intima which often showed degenerative change and calcification. Frequently the calcification was very well marked. The lesions were not confined to the root of the aorta, but often were much more advanced in the thoracic and especially the abdominal portion. In most instances the patients were elderly individuals; twenty-two, or 66.6 per cent., were over 50, and twenty-eight were over 40 years of age. In one instance the age of the patient was not given.

The condition noted in this group of cases is so familiar and is found so frequently in autopsies on old men and women that it needs scarcely any comment. Clifford Allbutt,[10] contrary to the opinion which is often expressed, has stated that aortic insufficiency is not essentially a disease of old age and that it is of rather exceptional occurrence in the decay of life. The present records are in accord with this view, for in only four of the thirty-four cases, or 11.9 per cent., were there signs of aortic insufficiency during life. In two of these cases there was calcification of the aorta. One of the cases, which occurred in a man aged 46 who had had syphilis, has been placed in this group, though the exact type of sclerosis of the aorta is doubtful, owing to the fact that no tissue was preserved for microscopic study. The aorta showed areas of calcification, which is so unusual in mesaortitis that, without more definite knowledge, the case cannot be considered as belonging to the cases of mesaortitis. In one other case no cardiac murmurs were heard during life, the patient lived but a short time after admission to the hospital, but at autopsy there was found a markedly dilated heart and rather extensive thickening of the aortic valves. The aorta showed advanced calcification. From the extent of the aortic lesion it seemed very probable that if the heart had been examined before the break in compensation the murmurs of aortic insufficiency might have been present.

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[10] Allbutt, Clifford: System of Medicine, Diseases of the Aortic Valves.

As might have been supposed, however, systolic murmurs, heard with varying intensity either at the apex or base of the heart, were common in this group and occurred in thirteen cases. It will thus be seen that, while thickening, stiffening and calcification of the aortic valves frequently goes hand in hand with calcification of the aorta and endarteritis deformans, these changes seldom gave rise to true aortic insufficiency.

In the accompanying table the cases of chronic aortic endocarditis are tabulated and show definitely the comparative frequency of the combination of aortic insufficiency and mesaortitis.

AORTIC INSUFFICIENCY AND MESAORTITIS

	Mesaortitis (Pure Aortic Endocarditis).	Endarteritis Deformans (Pure Aortic Endocarditis).	Rheumatic Fever, Etc. (Combined Aortic Endocarditis).
Aortic insufficiency	18	4	21
Chronic aortic endocarditis without signs of aortic insufficiency	3	30	00
Total	21	34	21

It may thus be seen that of the 43 cases of true aortic insufficiency giving symptoms, 18, or 41.8 per cent., were associated with mesaortitis, and of the 22 cases of aortic insufficiency *uncombined with lesions of any of the other* valves 18, or 81.5 per cent., were associated with mesaortitis.

It is a matter of common knowledge that syphilis is an important factor in the etiology of aortic insufficiency, but until recent years it has been difficult to prove this matter satisfactorily and to determine in exactly what proportion of cases the condition could be ascribed to syphilis. Siehe and Saathoff[11] have recently called attention again to the frequent association of syphilis and aortic insufficiency. In 7 cases of aortitis luetica which they report aortic insufficiency was present in 6. Albrecht[12] believed, too, that syphilis is the most important cause of aortic insufficiency. Citron,[13] investigating this same point, obtained a positive Wassermann reaction in ten out of sixteen cases of aortic insufficiency, or in 62.6 per cent. Investigations on this point are now being made, but at the present time the number of cases studied is too small from which to draw conclusions.[14]

The practical bearing which such findings have on the treatment of these cases of pure aortic insufficiency becomes at once apparent; for, though one cannot hope to cure the aortic lesion, still the process may perhaps be arrested and the progress of the disease of the aorta influenced by the vigorous use of antisyphilitic treatment.

SUMMARY

In these statistics it may be seen that aortic insufficiency unassociated with disease of the other valves is rare after the fifth decade, and that it is seldom associated with that type of arteriosclerosis known as endarteritis deformans. The majority of cases of uncomplicated aortic insufficiency (81.5 per cent. in the present series) are associated with a characteristic type of sclerosis termed mesaortitis. The involvement of the valves takes place probably by direct extension of the process along the wall of the aorta to the aortic valves. Syphilis is certainly the commonest cause of this type of sclerosis.

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ABSTRACT OF DISCUSSION

Dr. Richard C. Cabot, Boston: Since Dr. J. H. Wright called attention to the presence of spirochetes in the aorta of five cases of heart disease postmortem, we have been able to identify during life some cases similar to those to which Dr. Longcope has called attention. Some patients with heart disease, particularly of aortic disease, without a history of *rheumatic or pyogenic infection*, but with a history of syphilis and a positive Wassermann reaction in the blood, do respond to antisyphilitic treatment better I think than one would expect such patients to respond to the ordinary type of treatment with rest, digitalis, purgation and cardiac stimulation. In other words, *in cases which we believe to be* the result of syphilitic infection, pushing the iodids and mercury gives better results than could be obtained under the ordinary treatment. This is a point of great practical value. We should push antisyphilitic treatment in all these cases of *non-rheumatic cardiac disease* in which there is a history of syphilitic infection, especially if the Wassermann reaction is obtained.

Dr. Allen A. Jones, Buffalo, N. Y.: In the clinical history of these cases, was there any record of chest pain or anginal pain? In a recent case I studied, a man of 46 had syphilis and shortly before death he gave a positive Wassermann reaction, but there was no history of *aortic insufficiency*. He had two severe attacks of angina pectoris and died during the third attack.

Dr. Warfield T. Longcope, Philadelphia: The point made by Dr. Cabot is an important one and the probability is that *many of these patients* would be much benefited by antisyphilitic treatment. The patient whose case I reported had severe substernal pain and one or two definite *attacks* of angina. That, of course, is common in this type of cases on account of the involvement of the coronary arteries.

THE BLACK VOMIT (VOMITO NEGRO) OF IQUITOS, PERU, IDENTICAL WITH YELLOW FEVER

ENRIQUE A. VIGIL, M.D.
LIMA, PERU

REPORTS OF CASES

Case 1.—On August 19, 1905, three months after my arrival at Iquitos, I was called to attend Mr. G. S., a German, *aged 34* and robust, who had recently arrived from Brazil, where he had passed a few days in Manaos on his journey from Europe. He lived in Iquitos above a store.

A violent shivering, with intense rachialgia, cephalalgia and fever, had been the first symptoms of the patient's illness. Examining his abdomen, there was noticeable only a well-marked sensation of pain at the epigastrium. He had *fits of* vomiting and a temperature of 39 C. (102.2 F.). His eyes were red. I ordered him a saline purge.

On the following day I observed that the patient's liver was enlarged and the other symptoms continued. As the purge had caused a good evacuation. I ordered him quinin as a draught and salicylate enemas.

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[11] Siehe and Saathoff: München. med. Wchnschr., 1906, liii, 2050.

[12] Albrecht: München. Med. Wchnschr., 1906, liii, 332.

[13] Citron: Berl. klin. Wchnschr., 1908, xl, 2142.

[14] Since the completion of this work Collins and Sachs have reported the results of their study of the Wassermann reaction in cardiovascular disease. In 12 out of 13 cases of aortic insufficiency they obtained a positive reaction. In contrast to these findings only 1 of the 7 cases of diffuse endocarditis affecting the mitral valve gave a positive result. *They point to the* importance of syphilis as a cause of aortitis insufficiency and emphasize the value of antisyphilitic treatment in such cases.

On the 21st a subicteric tint was observable under his eyes and his very slow pulse contracted greatly with his temperature. His face showed anxiety and fear. The vomiting, always bilious, persisted, as also the other symptoms. In the urine were found 19 gm. of albumin per liter with 21.40 of urea. I discontinued the quinin and prescribed a tonic potion with lactate of strontium and alkaline draughts.

Early on the following day my patient was in a grave condition. The most minute examination showed no alteration in the spleen. The urine gave 9 gm. of albumin per liter and 21.40 of urea. I continued the previous day's treatment, adding caffein to the potion and the enemas and alkaline draughts.

On the 23d the patient grew worse; there was delirium: he got up and endeavored to leave his room, falling at the door. I prescribed bromid of strontium. The quantity of urine was small and contained 4.50 gm. of albumin and 26 of urea.

On the 24th his condition was the same, the icterus being more pronounced. During all these days the patient drank small quantities of iced milk: and the vomiting continued, though at less frequent intervals.

On the 25th his condition was better; the fever abated and the pulse was in harmony with the temperature. On the night of the 26th the patient slept well, showed scarcely any fever and his urine, charged with bile, contained only 4.50 of albumin and 24.8 of urea. The liver was enlarged; the spleen could not be touched. The improvement continued and on the 29th there was only 1.50 of albumin per liter; fever, persistent icterus.

On the 30th the albumin was only 0.25 per liter and the general condition good. On September 1 the patient was able to leave his bed.

From the third day I diagnosed the case as yellow fever and my colleague reserved his diagnosis but did not contradict mine. This case was not followed by others.

CASE 2.—At the beginning of 1907 I was called to see a strong young man, J. S., who, after living for some time in Manaos, had come to Iquitos on business. He was a Portuguese, who had been taken ill the previous day with shivering, fever, vomiting and slight pain at the waist. His whole body ached. When I examined him his eyes were red, as also his face; he had high fever and epigastric pain. Neither the liver nor the spleen was enlarged. On the following day, as the vomiting continued, I ordered an antiemetic, an application of ice at the epigastrium and iced champagne to drink. The same evening, as I was taking his temperature, he vomited more than half a liter of a thick liquid like coffee-grounds. The fever exceeded 40 C. (104 F.). The urine contained much albumin. I immediately injected 800 grams of Hayem's artificial serum under the skin of the abdomen, and gave the patient a cold bath, repeating the bath throughout the night, whenever the temperature exceeded 39 C. (102.2 F.). The next morning he was in a dangerous condition; he had a subicteric tint in his eyes, slow pulse, high fever, little vomiting, enlarged liver, spleen painless and untouchable, urine very bilious and albuminous. I held a consultation with two colleagues, who diagnosed the case as the bilious remittent malaria of hot countries. I pronounced it to be a typical yellow fever. On consulting the family they decided to leave the patient in my hands, and I again injected a liter of artificial serum; I continued the iced champagne, cold baths and alkaline enemas, and in the end was successful. On the sixth day the patient entered into convalescence, with his liver enlarged, icterus, and a small quantity of albumin. His spleen had not altered in the least. In a few days he was able to leave for Portugal to take alkaline baths. No other cases followed.

CASE 3.—In June, 1908, I was called to see a Spanish youth, M. C., recently arrived from Spain, who had been ill for three days. He had been given various doses of castor-oil with lemon. When I saw him he vomited several times a dark liquid like coffee, resembling the vomit of yellow fever. His pulse was slow; the fever slight; liver enlarged, and spleen inaccessible. A subicteric tint was observable in his eyes; the mouth was furred, with the appearance of typhoid; urine albuminous; epigastrium painful; sensory dull. Before so plain a picture of yellow fever I should have injected serum, but circumstances which are beside the case prevented my doing so. I administered tannin in a draught, iced mineral water and alkaline enemas. For several days I fought the disease, but after alternately improving and growing worse, the patient died.

Autopsy.—I invited all the medical men of Iquitos to the post-mortem. A general icteric tint covered the integuments, being specially pronounced on the chest. The liver was exceptionally enlarged, yellow, fatty and absolutely bloodless on being cut. The spleen was small, with its capsule wrinkled and turned back. The stomach showed black patches in the larger curvature and the mucus was thick and somewhat blanched. The kidneys, which were large and white, attested the acute nephritis. The cardiac cavities were full of semiliquid blood. The patient had died of yellow fever in its most dangerous form of icteroid typhus.

CASE 4.—A few days later the municipal officer of health invited us to the autopsy of a suspected case of "vómito negro." The deceased was a highlander, L. M., recently arrived from the mountains, and his family afforded the following information: On June 20, at 8 a. m., he felt pains in the head, waist and calves; eyes red; feverish and slightly delirious. He was given two doses of saline laxative which acted on him twice, and on the morning of the 30th he appeared better. In the afternoon he was worse; he had pains at the mouth of the stomach, nausea and high fever, at night he was delirious. He was given an infusion of vervain, which produced five evacuations, thick and somewhat black. On July 1 he was in the same condition, urine thick, fever and nausea. Again he was given vervain. On the morning of July 2 he was better, without fever; the nausea remained but there was no vomiting. He was given vervain again. On July 3 he awoke without fever, but had passed a bad night; his tongue was dry and showed dark spots; he had trembling fits and epigastric pain. He took a little chicken broth and even ate a piece of the fowl; passed dark urine several times and had various evacuations like coffee-grounds. At 8 o'clock that night hiccough came on and at 10 the patient vomited twice, more than half a chamber-vessel of blood of the colour of coffee-grounds. He was given the saline laxative in sweetened water. He passed the rest of the night with hiccough; next morning he was unconscious, did not speak, and died at 9 o'clock.

Autopsy.—A post-mortem was held the same afternoon; the body was that of a young man, whose eyes and face showed an icteric tint, which, however, was only slightly visible on the rest of the body; from the mouth there issued bloody foam. Notwithstanding the fact that several hours had passed since his death, the body was very warm; cadaveric rigor had set in. When the abdomen was opened the liver was found to be somewhat large in volume and of a yellowish color instead of its normal characteristic dark color; on cutting it transversely it gave a small quantity of blood (not bile), and in one place near the edge, which was quite pale yellow, it gave only a very small quantity of juice. The spleen was almost normal as regards dimensions but the volume was diminished, the capsule somewhat wrinkled and the soft pulp could easily be penetrated by the finger. Blood was taken from the viscera on two microscopic slides. The stomach, tied at the pyloric and cardiac orifices, was removed and opened at its smaller curvature; it contained almost a liter of dark fluid blood. In the large curvature was a fair-sized dark greenish-black stain which strongly tinged the mucus: there were also hemorrhagic stains of recent origin; the mucus was not easily removed. The heart, bloodless, showed nothing abnormal; from one auricle blood was taken on a microscopic slide. The kidneys, slightly enlarged in volume, offered nothing worthy of attention on being cut. The bladder, distended, contained urine which was intensely yellow, without being dark, and albuminous. Dr. Irujo, who examined the samples of blood, said nothing as to the result of his microscopic analysis.

CASE 5.—A few days after making the post-mortem just described I was called to see a Spanish youth, the companion of Patient 3, with whom he had come to Iquitos. The patient had been taken ill in the morning with fever, pains in the body and slight shivering. On examining him, his thickly-coated tongue, violent headache, and no other symptoms worthy of attention caused me to postpone my diagnosis and I contented myself with ordering the patient some mineral water. On the following day his eyes were red and he had some epigastric pain, fever and headache. As the water did not appear to do him good, I ordered him calomel, which caused abundant motions. Next day, in spite of the effect of the purge, his condition was the same, and I noted that the slowness of his pulse did not correspond with the fever. I called my colleague, Dr. Irujo, in consultation and expressed my doubts as to the nature of the present case; by common accord we gave him quinin as a draught. On the following day the condition of the patient was serious; he had a well-pronounced icteric tint; bilious vomitings and dark urine strongly charged with albumin; the liver was large and painful, the spleen inaccessible. In consultation with Drs. Irujo and Carvallo, I bled him, injected a liter of Hayem's artificial serum and gave the patient an alkaline enema. The patient recovered slowly and was sent to Yurimaguas to recuperate.

Case 6.—In the early part of the same month I saw *in extremis* a highlander, P., who was dying on the fourth day of his illness, emitting black vomits. I was unable to arrange a post-mortem.

Case 7.—About the same time Dr. La Torre called Drs. Irujo, Carvallo and myself in consultation over the case of an Italian, M., who had come from Lima by the Pichis Pass, and a few days after his arrival had fallen ill. He had been treated by his countryman, an apothecary, who, believing it to be a case of malaria, had administered quinin for four days. When we saw the patient he was yellow from head to foot, had hiccough, scarcely any fever, and a sample we saw of a recent vomit was of a dark color; the urine contained much albumin; the liver was enlarged; the spleen could not be touched or felt on sounding the patient. Notwithstanding treatment by injections of artificial serum, the patient died on the following day, and eighteen hours later La Torre and I performed the autopsy.

Autopsy.—From the liver, which was yellow and enlarged, blood issued in very small quantities on cutting it; the spleen showed no alteration; the stomach displayed much ecchymosis and hemorrhagic spots; the bladder contained a small quantity of urine, yellow and albuminous; the kidneys were large and pale; the heart, yellow, with semifluid blood.

Grave circumstances connected with the health of my family prevented my continuing to attend patients, and afterward I left Iquitos, taking with me notes of the clinical history of cases which I believe to be typical of yellow fever.

I now propose to give a few facts respecting the situation of Iquitos, its climate and its fertility in parasites transmitting yellow fever; and I will also enter into considerations indispensable to the further confirmation of my opinion, notwithstanding that the above post-mortems leave no ground for concluding that malaria is the generator of the disease. It is a notable fact, and I do not tire of repeating it, that in none of the patients was there during life any alteration in the spleen, and in no cases did the autopsy reveal in it the disturbances characteristic of infections by the hematozoon of malaria.

SITUATION OF IQUITOS

On a high bank of the Amazon is situated the town of Iquitos, and like a ring of water the rivers Itaya and Nanay and Lake Moronacocha surround it. There are numerous marshes on the side facing the *montaña* (forest region), while that side of the town which faces the Amazon is dry.

Dr. H. W. Thomas, of the Liverpool School of Tropical Medicine, gives some interesting data[1] respecting its public health, and I cannot resist recording here those which chiefly concern the subject of this paper.

Iquitos is remarkable for its swarms of mosquitoes, especially alongside the river and in the neighborhood of the marshes. The houses situated along the river bank are never free from mosquitoes, and if special nets were not used for the beds it would be impossible to sleep. It has been said that the yellow fever mosquito does not exist in Iquitos. This statement is false. The *Stegomyia fasciata* is found in great numbers; it is disseminated throughout the town; practically all the houses and stores are full of this parasite; a great number of houses have been examined, as also barrels and other water deposits, and the *Stegomyia* has always been found. Examination had been made of 69 houses belonging to the better class and the larvæ of *Stegomyia* were discovered in 65; in 63 cases the *stegomyia* larva was not associated with larvæ of other *Culex;* in two cases the *Stegomyia* and *Culex* were found together; in the other four cases the *Culex* was discovered in great quantities. In one house adjoining a store there were sixteen large barrels, nine shallow vessels, seven large empty oil tins and a heap of empty preserved meat tins, in addition to a collection of more than 300 bottles; in all these there was a small quantity of water, and in 90 per cent. there were larvæ of *Stegomyia fasciata.* This house is remarkable for the large numbers of mosquitoes which infest it, and on one occasion several persons succumbed to "vómito negro" in it.

Careful attention should be given to the marshes. We took samples of water from 120 springs, and allowed the larvæ to grow and develop; four samples contained larvæ of *Anopheles argyrotarsis;* the fasciolated form was found to be present in other samples: adult specimens of *Anopheles argyrotarsis, albitarsis* and *albipes* varieties, were always found near the marshes, and once in a house close by. An examination of these mosquitoes for malaria parasites was negative.

Is the "vómito negro" of Iquitos a form of yellow fever, or is it perchance a new disease? We have already said that the commission had no opportunity of seeing a single case of this disease. The generality of the symptoms, the temperature, the pulse record, and the duration of the illness, all coincide with those of yellow fever. The fact that newcomers are most liable to contract the disease is characteristic. The presence of the *Stegomyia fasciata* is a most important factor. All these points have been discussed with the Iquitos doctors, and a typical case of "vómito negro," the progress of which was related to me by one of the doctors,[2] leads me to believe in the strong resemblance which exists between yellow fever and the "vómito negro de Iquitos." Unfortunately necropsy has been impossible on typical cases of "vómito negro," which would have been of vital importance in elucidating the diagnosis.

The town of Iquitos is comparatively free from malaria and the majority of the cases come from the neighboring rivers.

CHARACTERISTICS OF VOMITO NEGRO

Case 1, that of G. S., permits no doubt as to the fact of the illness being yellow fever. How could one think of malaria when the patient grew worse on taking quinin and when, at the end of his illness, there was not the slightest alteration in the spleen? It was an isolated case of yellow fever.

The case of my second patient, J. S., diagnosed by two of my colleagues as remittent malaria, presents a most typical picture of yellow fever, is cured without quinin and shows no alteration in the spleen. Only persistent icterus remained, for which reason I sent the patient to Portugal for alkaline baths and change of climate. It was perfect confidence in my diagnosis which made me run the tremendous risk of treating this patient.

Case 3 is a typical one of icteroid typhus. The poor man had taken much quinin in the first two days, and his illness was one of the terrible forms of "vomito negro."

The autopsy on the body of L. M. (Case 4) and the story we doctors heard from his family shows us a case of yellow fever in which nothing is lacking.

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[1] Thomas, W. W.: The Public Health of Iquitos, 1905.

[2] Dr. Thomas refers to my Case 1, of which I gave him the clinical details.

Case 5 presents the "vómito negro" in an obscure form, for which reason I held a consultation. Not being sure of the case, I reserved my diagnosis, and, in accord with the doctor who saw the patient, I gave him quinin. As a result of this reagent the youth became worse; albumin appeared in the urine, and the icteric tint, and suspicious vomit were noticed; in this emergency we bled the patient, injected Hayem's artificial serum. The cure was slow but sure. The spleen showed no malarial reaction.

Poor P. (Case 6) was at death's door when I saw him; I found him surrounded by his coffee-ground vomits: it never occurred to me to think of malaria as the cause of his death. Unfortunately it was impossible to hold an autopsy.

Case 7, that of M., the Italian whom I saw with Drs. La Torre, Irujo, and Carvallo, presented a picture which admitted of no doubt. Serum was injected, but the poor fellow had already received from the hands of a quack enormous doses of quinin, and, in spite of everything we did for him, he succumbed. His autopsy, which I have noted above clearly, reveals, in accord with his symptoms, that the man died of yellow fever. His spleen showed no alteration at all; indeed, it was of normal size.

Why pretend to make malaria responsible for these deaths?

Soon after I arrived at Iquitos, a friend of mine, Mr. A. D., was taken ill with high fever, bilious vomiting, pain at the left hypochondrium, and two days later some albumin in his urine. As was natural, this patient was much afraid, because he thought he had been attacked by the famous "vómito negro" of Iquitos, of which we had heard so much on the Peruvian coast. I diagnosed this case as a remittent malaria of tropical countries, because I had no grounds for thinking that the patient's symptoms were those of "vómito negro." One of the doctors of the town who saw the patient diagnosed the case as "vómito negro de Iquitos," a special fever found in that locality, which, as I had only recently arrived, I did not know; he proposed to give the patient phenyl salicylate (salol) with acetphenetidinum, a remedy which at that time was the panacea for "vómito negro." I did not accept the diagnosis of the remedy, and consequently, on my judgment, I administered to the patient large doses of quinin hypodermically; in a fortnight he was better. Afterward he had a slight relapse, which compelled me to give him arsenic and iron to remove this clear infection of malaria completely.

I sometimes think that in Iquitos the same thing happens as does in Lima with typhoid fever. "Infectious fever" was the name given in Lima to a gastric complaint if it continued for some days; and the same name was applied to intestinal toxinfection, typhoid, malarial typhus, and other similar diseases. Something analogous occurs in Iquitos with the "vómito negro."

Although the points I have noted leave no room for doubt, I venture to offer a few remarks to strengthen my opinion.

In the presence of the patients with the symptoms presented by those I attended, three thoughts arise in one's mind: First, is it a case of bilious remittent malaria of tropical countries? Second, is it yellow fever? Third, is it a special disease peculiar to Iquitos —a colibacillosis, as Irujo believes?

The symptoms of bilious remittent malaria are very similar to those of yellow fever, and there are cases in which, while the patient lives, it is impossible to distinguish; but the autopsies are very different; for while in the bilious malaria the spleen is enlarged, and the liver enlarged, dark, bloody and full of bile when cut, in yellow fever the spleen suffers no alteration, while the liver is enlarged, of a light yellowish coffee-and-milk color, bloodless, gives scarcely more than a few drops of juice when cut and shows all the aspects of the tuberculous liver. The lesions of the stomach are very manifest in yellow fever, as also are those of the kidneys. If to this is added the circumstance that in Iquitos the mosquito most prevalent is the *Stegomyia,* as I have said, the *Anopheles* being scarcely met; and also that its climatic conditions of heat and atmospheric humidity place it in these respects in the same category as Pará and Manaos, the altitude of Iquitos above the sea-level being insignificant, it is easy to arrive at the conclusion that yellow fever and not malaria is responsible for the epidemic which raged in Iquitos and Yurimaguas last year. Bear in mind, too, the significant fact of the failure of quinin in the treatment of these patients, and the truth is so clear as to leave no room for doubt. Brought from Brazil, or originating locally, yellow fever is to-day endemic in Iquitos, where it is always present, appearing in the form either of sporadic cases, like Cases 1 and 2, or as an epidemic, such as began with Case 3 early in 1908 and has not yet terminated. It would not be far from the truth to suggest that it was this same disease, the famous "vómito negro," which destroyed the Junin battalion when it went there in 1895 with Colonel Ibarra.

On the coast we all see malaria perform its work of destruction, but, notwithstanding the abundance of cases, epidemics of bilious malaria rarely occur; the tertian and chronic malaria cause most ravage. Moreover, epidemicity is not distinctive of bilious malaria, whereas it is characteristic, in the majority of cases, of yellow fever. Again, those who are attacked by bilious remittent malaria are almost always persons who have suffered from malaria in some other form; it frequently happens, for instance, that a certain kind of intermittent malaria changes into remittent, in the same way as a simple tertian passes into a grave case of pernicious malaria.

Are we, then, dealing with a special Iquitos fever —a colibacillosis? This hypothesis has already occurred to certain doctors who have practiced in the Antilles. It is possible that colibacillosis may form part of the disease or may be wholly responsible for it; this is a question of etiology which I do not intend to discuss. It is still a matter for mature consideration to determine what is the precise cause and what is the germ of the disease. But I say to myself, "Why do we wish to make Iquitos the special locality for this disease when in Guayaquil, Pará, Manaos, etc., it always attacks by preference those who have recently arrived, as it does in Iquitos, with the same symptoms, with the same failure of quinin, with the anatomic and pathologic lesions which we all attribute to yellow fever? Why form new diseases from clinical observations which have already been well noted by others? Bretoneau, Dutroleau, Finlay, Freire, Lacerd, Silva, Lima, and others, all describe these observations of high fever, albuminous urine, black vomits, fatty degeneration of the liver and kidneys, no alteration of the spleen, in persons recently arrived in the tropics, by the name of yellow fever or black vomit?

Note.—I wish to thank Dr. Albert H. Carroll of Baltimore for his very valuable aid in the preparation of this article.

A COMPUTING CHART FOR MAKING A DIFFERENTIAL LEUCOCYTE COUNT

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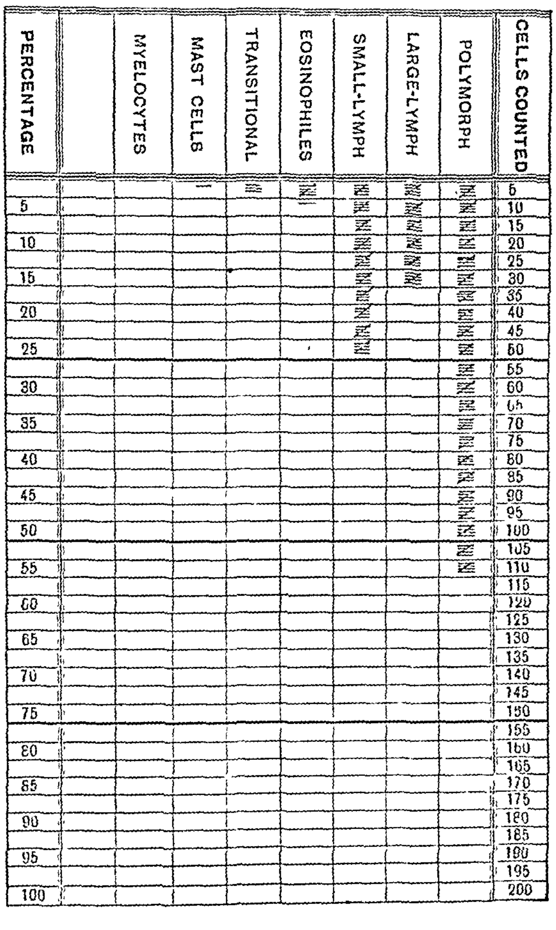
Any laboratory worker who has had any amount of blood work to do, especially in making differential leucocyte counts, has been more or less troubled with the necessity of having to figure out the percentages of the various types of cells and the liability of error.

The accompanying chart I have devised for use in the laboratory of the Cincinnati Hospital, and we have found it quite convenient in simplifying the work and removing sources of error. The chart is inexpensive and can be made out of a piece of ground glass or a slate, suitably ruled and marked in ink so as to be permanent. The temporary markings are made in pencil, can be readily erased, and the chart is again ready for service.

It is figured out on a basis of a count of two hundred leucocytes, and marked on the left to designate the various types of cells, as polymorphonuclear, large lymphocytes, small lymphocytes, eosinophiles, transitional cells, etc. At the bottom are the calculated percentages, and at the top the actual number of cells counted when the vertical columns are filled.



PERCENTAGE		MYELOCYTES	MAST CELLS	TRANSITIONAL	EOSINOPHILES	SMALL-LYMPH	LARGE-LYMPH	POLYMORPH	CELLS COUNTED
			𝍷	𝍷𝍷𝍷𝍷	𝍸	𝍸	𝍸	𝍸	5
5						𝍸	𝍸	𝍸	10
						𝍸	𝍸	𝍸	15
10						𝍸	𝍸	𝍸	20
						𝍸	𝍸	𝍸	25
15						𝍸	𝍸	𝍸	30
						𝍸		𝍸	35
20						𝍸		𝍸	40
						𝍸		𝍸	45
25						𝍸		𝍸	50
								𝍸	55
30								𝍸	60
								𝍸	65
35								𝍸	70
								𝍸	75
40								𝍸	80
								𝍸	85
45								𝍸	90
								𝍸	95
50								𝍸	100
								𝍸	105
55								𝍸	110
									115
60									120
									125
65									130
									135
70									140
									145
75									150
									155
80									160
									165
85									170
									175
90									180
									185
95									190
									195
100									200

A computing chart to facilitate making a differential leucocyte estimation.

The heavy lines running vertically are put in simply to facilitate the count, by indicating when fifty, one hundred or one hundred and fifty units are counted for a certain type of cell, and by referring to the figures in the top row one can at once read off the actual number of each type of cell counted, and easily sum up when a total of two hundred has been reached.

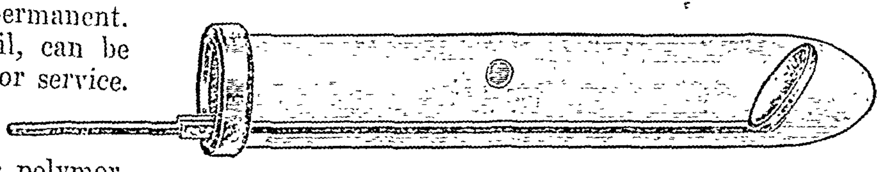
This being done, the percentages are read off directly from the bottom figures and the usual calculating with the possibility of error is entirely removed.

19 West Seventh Street.

A NEW ANAL SPECULUM

DUDLEY ROBERTS, M.D.
BROOKLYN

The speculum here described was constructed in the hope of securing an anal speculum which could be introduced into a hypersensitive anus without causing much pain. The object has been accomplished, for, from a considerable experience with its use, I have found that even an anus which is the seat of an irritable ulcer tolerates examination with this instrument in a most surprising manner.



A new anal speculum.

It has also been found that the view of the mucosa is exceedingly satisfactory. The distention is equilateral and no distortion of parts is occasioned, as is the case when the parts are made to present at the end of a tubular speculum or when some form of dilating speculum is used. It is possible that this instrument may facilitate the discovery of the mouth of a fistulous opening. Hemorrhoids are seen as bluish spots, and a far more accurate conception is obtained as to their number and size than when the patient forces down the entire venous tissue of the anal region by straining.

The tube is made of a glass of suitable thickness and the greatest possible clearness. The hole in the side of the tube is introduced for the possible purpose of making applications to ulcerated surfaces and the probing of spots suggestive of fistula. The mirror, which gives the view of the anal wall, is so arranged that it can be pushed in or withdrawn and also rotated showing the entire surface of the anus at different depths. Lubrication of the tube before introduction is done with a translucent lubricant, such as glycerin, or one of the proprietary preparations made for that purpose.

It is necessary to use either reflected light from a head-mirror or an electric head-light. When light such as this is thrown on the mirror the view is remarkably distinct, but ordinary diffuse light does not serve the purpose.

84 Remsen Street.

TRANSIENT PRESENCE OF CASTS IN URINE OF HEALTHY INFANTS

MILTON GOLDSMITH, M.D.
PITTSBURG, PA.

In connection with the article on "Transitory Urinary Findings Associated with Some Diseases of Childhood," by Carr,[1] I wish to report the following case:

A male child, 11½ months old, breast-fed until 9 months, had been since then on gradually increasing quantities of cow's milk, with cereals and corresponding withdrawal of breast-milk, until at the time these observations were made the child could be considered practically weaned.

This baby was larger than the average for his age, was strong and muscular, of a very happy disposition, had never been sick, and from all points of view would be considered an ideal child. I was attending another member of the family and simply out of curiosity to know something of the urinary findings in infancy, asked for a specimen from the baby. On examining the urine the same day, I was more than surprised to find in it a large number of hyaline and pale granular casts, an appearance suggesting the showers of casts seen in adults. There was neither albumin, blood nor any other constituent to suggest renal disease.

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[1] Carr, W. L.: The Journal A. M. A., Nov. 13, 1909, liii, 1622.

The day before this specimen was obtained the child had been possibly a little less jolly than usual, but there was absolutely nothing else in his behavior to even suggest ill health; and on the day the specimen was obtained he was as happy and lively as any healthy baby could be.

I was able to obtain specimens daily for about two weeks, but in none of them did I find anything abnormal, and in occasional examinations since that time have always found the urine normal; and the child has continued in such good health as to exclude any idea that he might have been suffering from an unrecognized nephritis.

With the idea that casts might occasionally appear in normal infants' urine, I endeavored to make frequent examinations of the urine of several infants of the same age. The difficulty in obtaining specimens, due largely to my inability to get the parents sufficiently interested, caused me to give up the work after examining probably eight or ten samples from one other child of the same age as the one concerned; these examinations were all negative. While the cases reported in Dr. Carr's paper and in the discussion following are all interesting, they show a true nephritis complicating numerous infectious processes, and the only reason for their apparent rarity is that they are seldom looked for.

The condition here described, the transient presence of numerous casts in the urine of an apparently healthy infant, I have not seen mentioned in the literature.

632 Fulton Bldg.

THE LABELING OF DRIED BLOOD-FILMS

R. H. VON EZDORF, M.D.
Passed Assistant Surgeon, United States Public Health and Marine-Hospital Service; Medical Officer in Command, New Orleans Quarantine Station
QUARANTINE, LA.

It is the practice at this quarantine station to make blood examinations for malaria from the stained specimen, and to keep on file for six months or more such as show a positive finding.

It often occurs that a number of slides are made at one time, or a number of slides from one patient are taken at different hours. Such slides are labeled at once, with the name, date, hour and minute, temperature of the patient when taken, name of vessel from which the case was removed; and, after staining the preparation and completing the examination, the findings, such as "estivoautumnal rings," "crescents," "ovoids," "rings and crescents," "tertian rings," "tertian mature," "quartan," "segmenting," etc.

A simple method of labeling these slides has been adopted, which is a mere modification of one described by Stephens and Christophers, who say:[1]

> Films should always be labeled as soon as possible, otherwise uncertainty and annoyance are sure to arise. The use of paper labels is not at all necessary in routine work.
>
> 1. The most convenient method is that of writing on the end or back of the slide with ordinary ink. This should be quite dry before placing in alcohol. There is then no fear of its coming off.
>
> 2. An excellent and extremely simple method of labeling has been described by Dr. Powell (Bombay), viz.: After making a dry film, as described above, the name, date, and other necessary information, are scratched on the film with the head or point of the needle. The films used being extensive, the writing in no way injures them. The first half inch or so of the film is frequently rather thick, and much information as to name, date, temperature, etc., may safely be written on it.

In place of using the head or point of a needle, I use an ordinary black lead-pencil, preferably a soft one. The result is that the writing on the blood-film is, in effect, the same as writing on a piece of frosted glass. The label thus made in the blood-film, being a carbon deposit, remains permanent and is not affected by the staining and washing of the slide. The black also contrasts well against the red or copper color of the stained preparation, making it easy to read.

THE FAILURE OF THE ROENTGEN-RAY IN THE TREATMENT OF HYPERTRICHOSIS

MAY CUSHMAN RICE, M.D.
Electrotherapeutist to the Mary Thompson Hospital; Gynecologist and Clinician, Illinois School of Electrotherapeutics
CHICAGO

In the early work with the *x*-ray, after exposures for various skin lesions, such as acne, eczema and epithelioma, it was discovered that hair present on the area treated would fall out. This occurred after a varying number of exposures. Not only was it true of fine hairs, but coarse hairs, when they existed, also yielded to the subtle influence of the ray.

In most cases the hair remained out for several weeks or even months; therefore it seemed that a new treatment for hypertrichosis had been found, which was painless, easily applied and henceforth to displace the tedious method of electrolysis. As a natural consequence the *x*-ray was eagerly welcomed by both patient and operator as the treatment *par excellence* for superfluous hairs. With this encouragement there was no lack of material for proving or disproving its value. Large numbers of patients were treated with apparent success at first; but almost invariably, after periods ranging from two to six months, the original growth was succeeded by a second stronger, as a rule, than that which had preceded it, and this by another and still another. Nevertheless, determined operators persevered; series on series of exposures were made in the hope that eventually the cure would be permanent, and so it was in rare instances.

Fortunately, in treating most diseases with the *x*-ray the ray affects the unhealthy tissue before the healthy, so that the disease often is cured with no more than a slight dermatitis. In hypertrichosis, the papilla, at which the destructive agent is aimed, is composed of healthy tissue and is no weaker than normal, but, on the contrary, stronger. Hence it must require a large amount of treatment; dermatitis must succeed dermatitis, frequently constituting a persistent or chronic inflammation, before any approach to a cure can be effected.

Because of the selective action of the *x*-ray on glandular tissue, under the repeated dermatitis necessary, there is atrophy of the sebaceous glands and hair-follicles, although often the papillæ remain. In addition to this, there is a vasomotor disturbance resulting in dilatation of blood-vessels or telangiectases; scar-tissue forms throughout the skin and this contracting scar-tissue, contrasting with the telangiectases, gives a most unsightly appearance. I have seen several cases in which the tissues were in this state. Unfortunately there is no means of repair. Time, instead of improving the condition, only renders it worse by still greater contraction of the scar-tissue. Those patients who have had milder treatment, yet sufficiently protracted to cause hair to remain out for any length of time, although they do not show the telangiectases, present a decidedly wrinkled, prematurely senile appearance. One patient, whose chin was a mass of scars and telangiectases, still had five hours of electrolysis on that area. Another had received seventy-five *x*-ray exposures, given by an eminent dermatologist and experienced *x*-ray operator. A woman of 40, she looked like one of 60. The rays had weakened the hairs materially, greatly facilitating their removal by electrolysis. Twice as many hairs could be removed in an hour as when *x*-ray treatment had not been given. In spite of all this, twenty hours of electrolysis were required. This case illustrates another effect of *x*-ray treatment, namely, the strengthening of the downy hairs. The patient under consideration had, besides the twenty hours of electrolysis on the chin and neck, three hours of work on the cheeks, where, previous to the use of the ray, her face had been clear. These hairs, although not strong, were black and decidedly conspicuous. Their development might have been prevented by proper protection of the cheeks from the ray.

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[1] Stephens and Christophers: The Practical Study of Malaria, 1904, pp. 6-7.

The stimulating action of the *x*-ray, when applied in moderate dosage, is utilized to some extent in the treatment of alopecia.

In the light of the fact that epitheliomas have developed in a number of cases on parts subjected to protracted *x*-ray exposures, should we not regard tissues in such condition as the above in a "precancerous" state? It would seem at least that the lowered vitality of the skin might render it somewhat more susceptible to epithelioma.

In a ten years' experience with the *x*-ray, having treated a large number of cases in both clinic and office practice, with no serious results, I have always made it a rule to employ the *x*-ray as a therapeutic measure only when no other form of treatment would accomplish the required result. Its use may be compared with that of anesthetics in surgery. Although, according to certain statistics, only one patient in 16,000 dies from ether anesthesia, there is always the chance of the exceptional case. In spite of the fact that in skilled hands the *x*-ray should be considered a safe remedy, it is advisable to choose the high-frequency current, electrolysis, or any other therapeutic agent which will cure the patient, rather than the *x*-ray, in view of its remote dangers. The field for the *x*-ray will still be sufficiently large.

In electrolysis is the only rational form of treatment for superfluous hair. A needle connected with the negative pole of a galvanic battery, passed into each hair-follicle to the papilla at the base of the hair, will permanently destroy the growth.

With proper technic and skill an enormous number of hairs may be removed without scarring and, by means of a recently discovered local anesthesia, the operation is rendered practically painless.

31 Washington Street.

Tuberculin in Tuberculosis of the Upper Air Passages.—The use of tuberculin preparations in selected cases of tuberculosis of the upper air tract is well warranted, but as yet there are but few recorded cases of cure, especially in this country.—J. R. Winslow, in the *Laryngoscope.*

STOCK VACCINE IN ONE CASE OF STAPHYLOCOCCUS PROSTATITIS AND TWO CASES OF FURUNCULOSIS

A. M. ROOKER, M.D.
NIAGARA FALLS, N. Y.

I wish to report on the use of stock vaccines in three cases which have occurred in my practice. The vaccine was used after all ordinary methods of treatment had failed to give relief, and the prompt results following the vaccine treatment have led me to send in this report.

CASE 1.—T. V., aged 29, had a severe attack of gonorrhea in November, 1908, was confined to bed eight weeks, and was a semi-invalid for the two following months. A discharge with severe rectal pain persisted up to May 30, when he first consulted me. The discharge contained a few gonococci, but these soon disappeared under treatment, the discharge continuing. A stricture of the pendulous portion of the urethra and a chronic prostatitis were also found. The former was soon cured by sounds, but the latter persisted after all ordinary treatment had failed. An examination of the expressed secretion showed an abundance of staphylococci in almost pure pus but no gonococci. Having no facilities for making cultures to determine the variety of staphylococci present, I used the combined aureus, citreus and albus as prepared by Parke Davis & Co., giving 100,000,000 as an initial dose. This causing no reaction, it was repeated at three-day intervals, the dose being increased at each injection until 400,000,000 was reached. The pain and irritation rapidly subsided, the prostate was nearly normal in three weeks and the secretion rapidly cleared of pus. In six weeks the patient had no trouble or pain whatever.

An interesting feature of this case is that the patient is afflicted with pulmonary tuberculosis, having had three hemorrhages and a severe cough. Within a week after the beginning of the vaccine treatment the patient's cough was markedly improved and in four weeks had practically stopped, and his weight had increased eight pounds. This unlooked-for improvement was evidently due to the effect of the vaccine on a secondary staphylococcic infection engrafted on a chronic tuberculous lesion in the lung.

CASE 2.—D. S., aged 8 months, had begun having boils when three months old. I had lanced twelve, and seven had opened spontaneously up to this time. They kept forming, notwithstanding careful asepsis after the opening of each, together with general tonic measures with calcium sulphid. Examination of the pus showing staphylococci present, I resorted to vaccine. Since I did not know whether Young's law of dosage would hold in vaccine therapy, I proceeded cautiously and gave only 5,000,000, again using the combined varieties. When the first injection was given three boils were forming; but in twenty-four hours they had practically disappeared. I gave two more doses at seven-day intervals with no recurrence up to the present time, four months after the first injection. In two weeks the baby gained three pounds, ate better and slept better than ever before. A possible etiologic factor in this case was a mammary abscess in the mother when the baby was four weeks old. The breast was opened and drained, the breast pumped and the milk fed to the child with a dropper. Whether the milk could have carried any infection or whether any of the pus was inoculated directly I cannot say.

CASE 3.—D. P., Italian, aged 18, had a secondary specific eruption, during which huge boils began to form all over his body, as many as thirty appearing in five weeks. No care being taken of them, the pus was rubbed over the surrounding skin, easily accounting for their frequency. The syphilitic eruption rapidly subsided under treatment, but the boils were unaffected. The pus showing nothing but staphylococci, I gave the patient three injections of 100,000,000, 200,000,000 and 300,000,000, each of the combined serum at four-day intervals. After the first injection one boil formed, but after the second and third there has been no further trouble, three months after the suspension of treatment.

1365 Michigan Avenue.

ENCYSTED VESICAL CALCULUS WITH PEDICLE

A. A. BONDURANT, M.D.
CAIRO, ILL.

History.—The patient, Mrs. F. L. H., consulted me March 16, 1909, giving the following history. She had ceased to menstruate several years ago and had never been pregnant; she had a feeling of pressure and bladder irritation for at least fifteen years, a bearing down when ascending stairs, and a sensation like fire darting from side to side of the abdomen on the least exertion. She could not stoop over, as it made her feel as if a cord was drawn across the lower part of the abdomen. She had seen several physicians and had had treatment for uterine and bladder trouble. She had worn pessaries and had bladder irrigation among other remedies, which gave only temporary or partial relief at times. She was neurotic and discouraged.

Examination.—I found a very sensitive spot in the urethra just in front of the bladder. The patient had used irrigation so much that I first thought it traumatic from catheterization. The bladder was somewhat contracted and very tender to sound touch. I found what seemed to be a large rough stone encysted at inferior posterior part of bladder, dragging the wall of bladder down slightly to left. Both vaginal and rectal examination (digital) revealed what seemed to be a large stone in bladder. The sound would pass over and about the roughened body but could elicit no distinct click. I diagnosed large stone probably encysted and three other physicians confirmed my opinion.

Operation.—I advised operation and chose suprapubic incision, which was done on March 22, 1909. I made an incision to admit the index-finger and found the supposed stone completely walled off from cavity of bladder, but bimanual manipulation proved it connected with posterior wall of bladder. I immediately closed the incision in the bladder completely by means of two rows of sutures; one reinforcing. I left a small drain to the bladder wall, and next made an incision above into the peritoneal cavity which had not previously been opened and found the calculus attached to posterior wall of the bladder by means of a very short pedicle which was really an extension of the peritoneal coating of the bladder and completely enveloped the mass of hard tissue which was principally osseous with some fibrous or connective tissue. I had no trouble in ligating and removing it. I closed the wound completely. The specimen weighed 378.084 grains, and measured a little over 2 by 1⅓ inches.

Postoperative History.—Two small stones the size of small peas were passed by the urethra, May 13, 1909, seven weeks after operation. They may have been there or forming at the time of operation, but I failed to detect them after a very thorough search. The shock was not excessive and temperature was never high. A stitch abscess from the upper incision produced a chilly sensation and temperature of 103 about the seventh day, which was promptly relieved by opening the abscess. I kept catheter in the bladder nine days, irrigating with boracic acid solution once or twice daily. I decided to risk union of bladder, as I had had no leakage at any time and directed the introduction of catheter every three hours, or more frequently if the patient was distressed from accumulation of urine. All went well until the end of the eleventh day from time of operation, when a slight quantity of urine came from first incision. Leakage continued more or less for two weeks, when bladder was distended even to moderate degree, after which progress was uninterrupted. Bladder symptoms gradually subsided until now, four months since operation, the patient has practically no trouble with it. The other distressing symptoms have disappeared and she looks and feels like a new person. This is certainly a rare specimen and, so far as I have been able to learn, the first with such an attachment.

The Reward of Industry.—The stairs that lead throneward start in low places. The world has owed most to its men of lowly birth. Let not the poor man murmur. To him belongs the future. The thrones of thought and of influence may be his if he is willing to climb up to them.—*United Presbyterian.*

A FAMILY EPIDEMIC OF ACUTE TRICHINIASIS [*]

JOSE L. HIRSH, M.D.
Professor of Pathology, University of Maryland
BALTIMORE

The house epidemic of trichiniasis which I wish to report first came under my observation on Feb. 7, 1909, and the history was later obtained.

The household consists of eight members, namely, a grandmother, mother, five adult children and a servant. On Jan. 31, 1909, the mother purchased in the market a variety of ham which is usually eaten raw. This was eaten by the five children; the grandmother, mother and servant did not partake of it. The disease was limited to the five children.

REPORT OF CASES

CASE 1.—Miss E., aged 23, was seen on February 7, seven days after eating the ham. Her previous history is practically negative. The present illness began the previous day, the chief complaint being indefinite pains all over the body and a decided edema of the eyelids. There was no nausea or vomiting or diarrhea. Tongue was coated; heart, lungs and abdominal organs were normal. Temperature was 100, pulse 85; respirations 20. Patient was menstruating at this time, so no urinary examination was made until a week later, when the urine was normal.

On February 8, the edema about the eyelids increased, involved entire face and the soreness and stiffness about the muscles increased. Temperature was 101. The condition resembled very much the grippe, which was prevalent at this time and which I took it to be. Blood examination showed 7,600 leucocytes. Widal reaction negative.

February 10: Patient complained of severe headache and considerable abdominal colic. The pains in the muscles of the neck and chest had become much aggravated, although at no time during the illness were there the exquisite pains which often accompany an acute myositis.

By February 15 the condition had remained practically the same, temperature varying from 99 to 104 F. Blood examination gave the following results: red blood cells, 5,000,000, leucocytes 8,000; hemoglobin 90 per cent. A differential count of leucocytes showed neutrophiles 55 per cent., small and large mononuclears and transitionals 11 per cent., eosinophiles 34.

A leucocyte count made on February 24 showed 18,000 with an eosinophilia of 32.4 per cent.

The condition remained practically the same for the next week. The variations in the temperature were very great, now and then reaching normal in the morning and evening, to be followed the next day by a rise to 102-103 F. The condition lasted three weeks; then the patient slowly convalesced.

CASE 2.—Mr. M. A., aged 28, on February 8, noted that his eyelids were somewhat swollen and that he had a tired feeling; he became exhausted on very slight exertion. He had not been feeling perfectly well for past three days. No nausea, vomiting or diarrhea was present. On February 10, the patient took to bed, with a picture of typical typhoid fever. At this time examination showed face anxious, severe headache, mild delirium, tongue dry, abdomen somewhat distended and decidedly tender on pressure; muscles of back and extremities painful on motion and uncomfortable on pressure; thoracic and abdominal organs negative; temperature, 104; pulse, 110; respirations, 28. Leucocyte count was 7,000; Widal negative and urine normal.

The condition remained practically the same for two weeks, when all the symptoms began to subside. There was no intermission in the temperature curve, which varied from 100 to 105. At no time were the muscles very tender on pressure, but the slightest movement was painful. Leucocyte counts made at various intervals (table of blood examinations) showed a constant leucopenia, on one occasion dropping to 4,300 leucocytes per mm. The eosinophilia varied from 21.6 to 38.7 per cent.

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[*] Read before the Medical and Chirurgical Faculty of Maryland, May, 1909.

Case 3.—Mr. G., aged 34, seen February 8, gave the following history. On February 6 patient had a severe attack of abdominal cramps which he attributed to drinking a glass of very cold beer just before retiring; he felt fairly well the following day, but the cramps returned the morning of the day I saw him. At this time he complained of great lassitude and later in the day vomited.

The following day, February 9, he was unable to get out of bed on account of the soreness and stiffness about the muscles; there was a slight puffiness about the eyelids which increased toward night. Headache and restlessness became more marked. Temperature was 99.5, pulse 90, respirations 20.

This was the mildest infection and ran its course in about three weeks. The blood examination in this case is of particular interest in that the eosinophilia was most pronounced, reaching on one occasion to 40.4 per cent, the highest of any in the series. Likewise the highest leucocyte count, 14,000, was noted in this case.

Case 4.—Mrs. G., aged 27, had the most severe infection and gave the most typical picture of the disease. On February 10, eight days after eating the ham, the first definite symptoms appeared. The patient complained of feeling tired and the eyelids were swollen. There was no nausea or vomiting; bowels were constipated. Temperature was 99, pulse 80.

On February 12 patient went to bed. She was now complaining of severe headache, so intense as not to allow her to sleep day or night and requiring morphin to give relief. The following morning, vomiting began and was repeated at intervals of every few hours for the next two days. Physical examination at this time was negative as to heart, lungs and abdominal organs. Temperature was 102.

On February 18 headache was still a prominent feature; there were very severe abdominal cramps. Eyelids were still edematous. Pressure on the scaleni muscles gave exquisite pain. The biceps and gastrocnemi were painful both on pressure and motion; the limbs felt comfortable when they became fixed in one position, but any change from this position was attended with pain; patient said that the legs felt as if they might be made of wax and were straightened or bent only with effort. Patient complained of a peculiar pain in the upper abdomen saying she could feel it move up and down with each breath; this was undoubtedly due to the involvement of the diaphragm.

On February 20 an intense urticaria appeared over the whole body. The temperature in this case was of an intermittent type. On February 20 and 21 the temperature was normal; on the 22d and 23d it rose to 103. The respirations were constantly rapid, varying from 25 to 40; even with normal temperature the respiratory rate was as high as 30, probably owing to the diaphragmatic involvement. The blood chart in this case is also of interest; at no time was there a leucocytosis, the leucocytic count varying from 6,300 to 8,000. Likewise the eosinophilia was but of a comparative moderate degree varying from 14 to 36 per cent.

On February 27 the patient felt better and was able to sit up; the muscles still felt tender; there had been no nausea or vomiting for past few days. Temperature was normal.

Examinations of stools both by myself and Dr. Adler were negative for parasites.

Case 5.—Mr. J. A., aged 21, was feeling well until February 11, when he began to complain of lassitude and pain in the legs, especially when going up the steps. Slight headache was present; no nausea, vomiting or diarrhea. Physical examination at this time was negative.

When patient awoke on February 12 he noted a well-marked puffiness of the eyelids. Pains in the muscles of the extremities increased. Pain was felt on motion or pressure, especially over the biceps and gastrocnemius. Temperature was 102, pulse 100, respirations 22.

On February 15 the patient was suffering from severe headache and insomnia. Temperature was continuously high with no intermissions.

On February 18 leucocyte count was 6,800, with 27 per cent. eosinophiles.

All these patients recovered, the duration of the attacks varying from three to six weeks.

TABLE OF BLOOD EXAMINATIONS IN FIVE CASES OF TRICHINIASIS

Case.	Date.	Whites.	Poly-nuclears.	Mono-nuclears.	Eosino-philes.
1.	2/18	8000	55	11.0	34.0
	2/22	12000	48.4	19.2	32.4
	2/27	10500	59.1	13.4	27.5
	3/ 1	7600	62.4	19.6	18.0
	5/ 8	.....	71.7	24.5	3.8
2.	2/18	6000	52.4	18.5	29.1
	2/22	4300	51.5	16.5	32.0
	2/27	7400	39.5	21.8	38.7
	3/ 1	.....	60.0	18.4	21.6
	5/ 8	.....	63.2	20.0	16.8
3.	2/18	12000	38.0	11.6	40.4
	2/23	14000	53.6	18.0	28.4
	2/27	9300	41.8	27.2	31.0
	3/ 2	9000	68.2	8.6	23.2
	5/ 8	.....	63.0	25.1	11.9
4.	2/18	6300	55.6	8.0	36.4
	2/23	5700	50.4	32.6	17.0
	2/27	6500	59.9	18.7	21.4
	3/ 2	8000	69.5	16.5	14.0
	5/ 8	.....	62.9	18.8	8.3
5.	2/18	6800	57.0	16.0	27.0
	2/24	7900	44.7	10.3	45.0
	2/28	7000	50.1	21.4	28.5
	3/ 1	.....	52.1	17.4	30.5
	5/ 8	.....	65.3	27.4	7.3

DISCUSSION OF CASES

An analysis of the symptoms as shown by this group of cases shows several points of interest.

The earliest symptoms showed themselves about the sixth to tenth day after the ingestion of the meat—probably at the time when the larvæ had fully devloped.

Edema of the eyelids was present in every case; in three of the patients it was the first symptom observed. This edema was of a character resembling that seen in Bright's disease. In two patients the entire face was puffy. No swellings were noted elsewhere.

Gastrointestinal symptoms were the following: Abdominal cramps were present in all; in two of a particularly severe type. Nausea and vomiting was noted in Cases 3 and 4—of a particularly aggravated type in the latter. Diarrhea was not present in any; to the contrary, constipation was troublesome.

Muscle pains were prominent symptoms. All complained of a general soreness over the entire body, and before taking to bed walking became difficult. When at rest in bed the limbs would become fairly comfortable when in a fixed position, but the least motion was associated with discomfort. In but one (Case 3) was the pain of an acute nature on pressure, and this was especially evident in the scaleni; an interesting observation in the same patient was the excursion of pain following the course of the diaphragm on deep expiratory and inspiratory efforts.

In two of the cases the temperature remained constantly high; in three there were intermissions, the temperature at times remaining normal for thirty-six hours and gradually rising to 103. Chills were not present in any. Pulse corresponded to the temperature, as did also the respiration, except in Case 3, in which the respiratory rate was constantly accelerated—probably associated with diaphragmatic involvement.

The urine was negative. The stools were negative for parasites. Urticaria was present in one case and was of an extremely aggravated variety, involving practically the whole body and lasting for three days.

THE BLOOD

The study of the blood in this disease by Brown[1] has made trichiniasis one of the diseases of easy recognition. This one particular readily differentiates it from such diseases as typhoid fever, grippe and rheumatism. In Brown's original study of 3 cases, the chief change noted in the blood was a leucocytosis, in which the increase of the leucocytes occurred in the eosinophiles.

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[1] Brown, T. R.: Jour. Exper. Med., 1898, p. 315.

The leucocytes varied in number from 8,000 to 30,000 per cubic mm. and the eosinophiles from 8 to 68 per cent., this eosinophilia corresponding to a decrease in the neutrophiles. This observation has been confirmed by Blumer and Neuman[2] in an epidemic of 9 cases, by Cabot,[3] Kerr,[4] Kinnicutt,[5] Atkinson[6] and others.

A study of the blood charts in my cases fails to show a constant leucocytosis; in only 2 of the 5 cases was there a leucocytosis, and that was of a moderate degree, in Case 1 rising to 18,000 and in Case 3 to 14,000. In Cases 2 and 4 there was a decided leucopenia; in the former the leucocytes varied from 4,300 to 7,400 and in the latter from 5,700 to 8,000. In Case 5 leucocytes were normal—6,800 to 7,900.

The eosinophilia, however, was constant, and varied from 18 to 45 per cent. There was no relationship, however, between the severity of the infection and the extent of the eosinophilia; in Case 3, which was the mildest, the eosinophiles reached 40.4 per cent., while in Case 4, the most severe infection, 36.4 per cent. was the highest count noted.

As to duration of the eosinophilia, examination of the blood on May 10, three months after the onset, showed an eosinophilia of 3.8 per cent., 16.8 per cent., 11.9 per cent., 8.3 per cent. and 7.3 per cent., respectively.

In one of Brown's cases there was an eosinophilia of 34.7 per cent. five months after the patient's discharge. Stump's case showed 15 per cent. eosinophilia after four and a half months.

To my great regret, I was not permitted to remove a piece of muscle from these patients, so that the diagnosis must rest on the history of five members of a family of eight eating uncooked ham, and these five becoming ill; the symptoms and the blood changes.

TREATMENT

If one sees the cases early enough a brisk purgation may prove of value; but it is difficult to see that this can be of much service when the worm has penetrated the mucosa—the time when the patient is apt to come under observation.

There is no specific for the destruction of the embryos, although hexamethylenamin has been advised with the idea that the liberated formaldehyd has some effect. Relief of muscle and abdominal pains with opiates and hypnotics to procure sleep is about all that can be done until Nature takes care of the invading parasite.

The muscle trichina (the immature or larval form of the parasite) is a worm about 1 mm. in length, which lives in the muscles of the body. It is usually rolled into a spiral and lies in a capsule which occasionally contains lime salts. If a piece of muscle containing living trichinæ is taken into the stomach of the host—as when uncooked pork is eaten—the capsule is dissolved and the trichinæ are set free. In the intestinal canal they attain maturity in about three days, when copulation takes place.

On about the seventh day after the ingestion of the muscle trichinæ the birth of the embryo begins, a process which may last for weeks. It has been estimated that a single female trichina may bear from 1,000 to 1,300 young. The female worm penetrates the intestinal wall and, according to the observation of Zenker, the dissemination of the embryos to the muscle is by way of the lymph spaces and then into the blood-stream. Askanazy[7] found the embryos in the abdominal lymph-glands; further studies by Graham[8] and Staubli[9] confirm this. Frothingham,[10] in a recent article, shows that the parasites penetrate the mucous membrane of the large and small intestine. Neither the male nor the female worm penetrates the connective tissue of the villi; the embryos are discharged into the tissues and these gain entrance to the lymph spaces, the adult worms remaining under the mucous coats of the intestinal wall, which probably accounts for the difficulty of finding the worms in the stools, except when looked for very early—that is, in the first two or three days after the infection—a time when symptoms seldom point to any definite infection with this parasite.

While Staubli in 1905 reported the recovery of the embryos from the heart's blood of infected guinea-pigs, it is but recently that Herrick and Janeway[11] first demonstrated the embryos in the circulating blood of man. By collecting 10 c.c. blood from the arm vein in a 3 per cent. solution of acetic acid, four embryos were seen in one member of a family in which nine were affected with the disease. This is undoubtedly an important advance in our method of diagnosis, and if further observations confirm these findings, blood examinations will have the same value in this disease as in malaria.

1819 Linden Avenue.

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[2] Blumer and Neuman: Am. Jour. Med. Sc., January, 1900.
[3] Cabot: Boston Med. and Surg Jour., 1897.
[4] Kerr: Philadelphia Med. Jour., Aug. 25, 1900.
[5] Kinnicutt: Practitioners Soc., Feb. 2, 1900.
[6] Atkinson: Philadelphia Med. Jour., June 3, 1900.
[7] Askanazy: Virchow's Arch. f. path. Anat., 1895, cxli, 42.
[8] Graham: Arch. f. mikr. Anat., 1897, l, 219.
[9] Staubli: Deutsch. Arch. f. klin. Med., lxxxv, 286.
[10] Frothingham, C.: Intestinal Lesions Caused by Trichinella Spiralis in Rats, Arch. Int. Med., January, 1909, ii, 505.
[11] Herrick, W. W., and Janeway, T. C.: Arch. Int. Med., April, 1909, iii, 263.

THE COMPARATIVE STRENGTH OF DIGIPURATUM

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In another paper[1] I recently gave a brief outline of certain undesirable effects which frequently make digitalis medication difficult. These have constituted such decided hindrances to the best results where such medication was indicated that a number of investigators and manufacturers have employed many different formulas and pharmaceutic procedures in an effort to get rid, at least, of certain of these disturbing factors.

Among the more recent products of this class is digipuratum (extract of digitalis depuratum, Knoll). The method of preparation is kept secret, but digipuratum is said to be a purified extract of digitalis, which, by a process of purification originated by Gottlieb,[2] is freed from about 85 per cent. of inert and undesirable material, including the irritating saponin-like body digitonin. The remaining 15 per cent. is said to represent the full activity of the original extract and to contain both digitoxin and digitalin. The digitalis extract having been thus purified, the resulting yellowish solution is mixed with such amounts of milk-sugar that when tested biologically on frogs it has the same activity as a like amount of strongly active digitalis leaves—that is, 1 gm. digipuratum equals in activity 1 gm. powdered digitalis leaves.

Digipuratum is further said to be insoluble in cold water and in acids, but to be easily soluble in weak alkalies. Theoretically, therefore, it is said to have no action on the stomach and to be absorbed only after reaching the small intestine. Clinically also Mueller asserts that symptoms on the part of the stomach do not often develop;[3] but too few cases have been reported as yet to establish this claim of lessened toxic secondary effects when compared with the older preparations. Such questions must be left largely to the clinician, and the experiments which follow and the conclusions drawn from them were carried out merely to determine the drug's activity according to the biologic method of assay used at this laboratory.[1]

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[1] Hale, W.: A Comparative Study of Digalen, THE JOURNAL A. M. A., Jan. 1, 1910.
[2] Hoepffner: München. med. Wchnschr., 1908, lv, 1774.

In order to prepare the powdered digipuratum for injection, 1 gm. of the powder was taken and to this 100 mg. sodium bicarbonate was added; this mixture of alkali and digipuratum powder was then shaken from time to time for twenty-four hours with 8 c.c. 25 per cent. alcohol. The insoluble material was then allowed to settle and the resulting clear portion was decanted and set aside. The insoluble residue was further treated with small amounts of 25 per cent. alcohol until a total of 20 c.c. alcohol had been used in this shaking-out process. The later decantations were evaporated over a water bath at 80° until the total extractive when added to the first decantation equaled 10 c.c., or a solution conforming to the U. S. P. tincture of digitalis.

Digipuratum is also marketed in tablet form, each tablet representing 1½ grains (100 mg.) of the powder. Ten such tablets were treated in the manner above described so that a resulting alkaline 25 per cent. alcoholic solution of 10 c.c. was obtained.

An assay of the powder was undertaken to determine the amount of powdered digipuratum in 10 per cent. solution necessary to produce systolic stoppage of the heart of *Rana pipiens* at the end of one hour. Doses were calculated in cubic centimeters per gram of frog body weight. The experiments gave the results shown in Table 1.

TABLE 1.—EFFECT OF POWDERED DIGIPURATUM ON THE FROG

Weight of Frog.	Dose Per Gram Weight.	Result.
49	0.004	..
48	0.005	..
45	0.006	+
53	0.007	+
55	0.008	+
49	0.010	+
60	0.012	+

An assay of the tablets of digipuratum was made to determine the amount of digipuratum tablets in 10 per cent. solution necessary to produce systolic stoppage of the heart of *Rana pipiens* at the end of one hour. Doses were calculated in cubic centimeters per gram of frog body weight. The experiment gave the results shown in Table 2.

TABLE 2.—EFFECT OF DIGIPURATUM TABLETS ON THE FROG

Weight of Frog.	Dose Per Gram Weight	Result.
42	0.004	..
47	0.005	..
58	0.006	+
57	0.007	+
56	0.008	+
43	0.010	+

These results may be summarized as follows:

Preparation.	Dose to Produce Systole.
Digipuratum powder	0.006 c.c. = 0.0006 gm.
Digipuratum tablets	0.006 c.c. = 0.0006 gm.

These results indicate that the two samples are of the same strength, a result which accords with the manufacturers' claim that digipuratum is an assayed product. They also show that digipuratum in 10 per cent. solution (corresponding to the official tincture in strength) is of about the same activity as strongly active preparations of the tincture when assayed by the same method,[4] but when compared with a series of assays[5] of official fluidextracts, diluted to 10 per cent. strength, digipuratum in 10 per cent. solution was considerably more active.

These biologic tests may, therefore, be said to show that digipuratum is of the same strength whether purchased in the tablet or in the powdered form, and that it is of about the same activity as the strongest official digitalis preparation on the market.

To what extent the use of digipuratum is justified on the grounds of lessened secondary effects is outside the province of this paper to discuss. On general grounds, however, it may be said that its use rather than a physiologically standardized official preparation seems to offer no special advantages and, except in those cases in which secondary toxic effects are produced by them, that the official preparations would be equally efficient and are about 1,500 per cent. cheaper. Whether digipuratum also produces secondary toxic effects as often as the official galenicals do is a matter which must be decided by the clinician.

Twenty-fifth and E Streets N. W.

THE DISTRIBUTION OF ANTIBODIES AND THEIR FORMATION BY THE BLOOD *

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CHICAGO

In the following we give a brief summary of the principal results that we have obtained from a study of the distribution of antibodies in the body fluids of dogs and of their formation by the blood. The complete article will be published later.

In active immunization of dogs by a single intravenous injection of goat blood the lysin, agglutinin and opsonin for goat corpuscles reach their highest concentration in the blood. They are uniformly slightly less concentrated in the thoracic lymph and the neck lymph, while in the cerebrospinal fluid and aqueous humor only traces of the lysin and the opsonin can be detected at the height of immunity.

In dogs similarly immunized with rat blood the opsonin and agglutinin in the blood and lymphs describe parallel curves, the concentration being greatest in the blood. In the cerebrospinal fluid opsonin only is present, and, while the concentration is much lower than that of the blood and lymph, the curves are parallel. No increase in lysin for rat corpuscles was demonstrated by the methods used.

This relative concentration of antibodies in the blood and lymph seems to obtain in normal animals as well as in all the stages of immunization.

On transfusion of blood of dogs immunized with goat blood into normal dogs previously bled through the carotid, the antibodies can be detected in the lymphs of the recipient in 30 minutes, and in a short time the same relative distribution of the antibodies is effected as in active immunization. It seems, therefore, probable that in active immunization the distribution depends on the equilibrium relation between the blood and the lymph rather than the place of formation of the antibodies, and that the rate of passage of the antibodies from the blood to the lymph is probably in part a function of the concentration in the blood.

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[3] Mueller: München. med. Wchnschr., 1908, lv, 2651.

[4] Edmunds, Charles Wallis: The Standardization of Cardiac Remedies, The Journal A. M. A., May 25, 1907, xlviii, 1744. The doses recorded in this paper are based on the amount necessary to produce systolic stoppage of the heart of 20-gram frogs and should be divided therefore by twenty to permit of *comparison*.

[5] Edmonds and Hale: Bull. 48, Hyg. Lab., U. S. P. H. and M.-H. S., Washington.

* From the Memorial Institute of Infectious Diseases, and the Department of Physiology of the University of Chicago.

There appears to be no difference in the rate of passage of the various antibodies from blood to lymph, but our methods might not disclose slight variations.

When the blood of an immune animal is transfused into a normal animal previously bled dry, there is a rapid fall in the concentration of antibodies during the first 24 to 48 hours; then follows a more gradual disappearance of the antibodies until the normal limit is reached, the rate of diminution being a measure of the rate of destruction and elimination of antibodies as there is no production in the transfused blood. Hence the duration of passive immunity after as complete transfusion as possible depends on the concentration of the antibodies in the donor's blood and the quantity of this blood transfused, a point of possible importance in connection with direct transfusion for therapeutic purposes in infectious diseases.

Bleeding a dog dry while in the latent period after intravenous injection of goat blood and then transfusing him from a normal dog may have no other than a stimulative effect on the processes of antibody formation. And transfusion of a normal dog (previously bled dry) from a dog injected intravenously with an optimum antigenic dose of goat blood from 3 to 48 hours previously does not lead to the production of antibodies in the recipient. If the transfusion is made some time later after the introduction of the antigen the result is a simple passive immunization. These facts indicate that in this case the blood takes no direct part in the fixation of the antigen or the production of antibodies.

New and Nonofficial Remedies

Since the publication of the book "New and Nonofficial Remedies, 1909," the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections to aid in the revision of the matter before publication in the book are asked for.

The Council desires physicians to understand that the acceptance of an article does not necessarily mean recommendation, but that so far as known it complies with the rules adopted by the Council.

W. A. PUCKNER, Secretary.

(Continued from page 2101, Vol. liii)

LACTOPHENIN — Lactopheninum. — Phenetidinum lactylatum (Pharm. Helvetica, edit. 4)—Lactylparaphenetidin.—Lactophenin is lactylparaphenetidin, $C_6H_4.OC_2H_5.NH(CH_3.CHOH.CO = C_{11}H_{15}NO_3$, a phenetidin derivative differing from acetphenetidine (Phenacetin) in that the acetic-acid radicle of acetphenetidine is replaced by the lactic-acid radicle (lactyl).

It is prepared by heating lactic acid and paraphenetidin, in molecular proportions, at 180° C. (356° F.) until all the liberated water is expelled and crystallizing the product from hot water.

Lactophenin occurs as a white, crystalline, odorless powder, of slightly bitter taste and neutral reaction. It melts at 117.5° to 118° C. (243.5° to 244.4° F.). It is rather difficultly soluble in cold water (1:330), and is soluble in 55 parts of boiling water. It is soluble in 8.5 parts of alcohol, and is not precipitated from this solution by water. In ether and petroleum it is difficultly soluble.

On boiling 0.2 Gm. of lactophenin with 2 Cc. hydrochloric acid for one minute, then diluting the solution with 20 Cc. water, and filtering when cold, the filtrate will become colored a ruby red on the addition of chromic acid solution.

On dissolving 0.1 Gm. lactophenin in 10 Cc. hot water, and filtering when cold, the filtrate, on the addition of bromin water, should afford a decided turbidity which disappears on the addition of much water.

The aqueous solution of lactophenin must not have an acid reaction.

No blue coloration should develop on adding potassium dichromate solution to the cold aqueous solution of lactophenin (absence of phenetidin salts).

Lactophenin should dissolve in concentrated sulphuric acid in the cold without coloration (absence of foreign organic mixtures), and on incineration should leave no weighable residue (absence of inorganic admixtures).

Actions and Uses.—Lactophenin is an antipyretic and analgesic similar to acetphenetidin (phenacetin). It is claimed that it has a more marked action as a hypnotic than acetphenetidin (phenacetin) and that at the same time respiration and circulation remain unchanged. It is also claimed that the lactic acid constituent is more easily separated from the compound than is the case with the acetic acid radicle of acetphenetidin. It is stated that the preparation is absorbed from the stomach to a large extent, so that the activity of the doses given reaches its maximum in a short time.

The therapeutic indications of lactophenin are similar to those of acetphenetidin (phenacetin). It is claimed by the manufacturers to be particularly valuable in the treatment of typhoid fever on account of its combined antipyretic and sedative properties. On the other hand, it is the general opinion that antipyretics should not be used in the treatment of typhoid fever unless under very exceptional circumstances. In the opinion of good authorities the action and uses of lactophenin do not materially differ from those of acetphenetidin (phenacetin).

Dosage.—The initial dose is 0.5 Gm. (8 grains) for adults and the maximum daily dose 3 to 5 Gm. (45 to 75 grains).

Manufactured by C. F. Boehringer & Soehne, Waldhof near Mannheim. (Merck & Co., New York.) U. S. patent 503743. U. S. trademark 24643.

QUININE AND UREA HYDROCHLORIDE — Quininae et Ureae Hydrochloridum.—Chininum bihydrochloricum Carbamidum. — Quinine and urea hydrochloride, $C_{20}H_{24}N_2O_2.HCl + CH_4N_2O.HCl + 5H_2O$, is a compound of quinine hydrochloride and urea hydrochloride.

Quinine and urea hydrochloride is prepared by dissolving 400 parts of quinine hydrochloride in 300 parts of dilute hydrochloric acid, sp. gr. 1.061, mixing the solution with 60 to 61 parts of pure urea $CO(NH_2)_2$ warming the mixture until dissolved, filtering it through glass wool and setting the filtrate aside for crystallization. After twenty-four hours the crystals are brought on a filter, drained, washed with very cold distilled water, spread on flat plates and dried at room temperature. The mother liquor is evaporated and again set aside for crystallization. The second mother liquor which is colored brown is exposed in a dish to spontaneous evaporation, during which all of the double salt of quinine slowly crystallizes out and may be separated.

The hydrochloride of quinine and urea crystallizes from hot solutions in hard white interlaced four sided prisms. On spontaneous evaporation of a concentrated solution very large transparent prisms are formed. The salt dissolves at ordinary temperature in its own weight of water forming a somewhat viscid straw colored liquid, not altered by exposure to light. During its solution a marked lowering of temperature occurs.

It is not hygroscopic and is unalterable in the air excepting when warmed, the crystals lose their transparency and become yellowish. They fuse at from 70° to 75° C. (158° to 167° F.) with the loss of 10 per cent. of water forming a yellowish liquid which congeals on cooling to a yellow mass. If this mass is allowed to stand in the air it takes up after a few days the whole amount of water expelled and becomes again white. If the melted salt is dissolved in water it may be completely recovered in a crystalline form. It is also soluble in alcohol and from this solution a salt of somewhat variable composition is precipitated by ether.

Actions and Uses.—Quinine and urea hydrochloride has the actions of quinine. It is non-irritating when injected hypodermically. Recent investigations have shown that when injected hypodermically or when applied locally to mucous membranes it exerts an anesthetic action similar to that of cocaine. It is reported that the anesthesia is in some cases prolonged for several days.

Quinine and urea hydrochloride is said to be especially useful in the treatment of malaria by hypodermic injections. It has also been applied as a substitute for cocaine in the production of local anesthesia for operations.

Dosage.—The same as Quinine. For the production of local anesthesia injections of a solution of from $\frac{1}{4}$ to 1 per cent. strength are used. The $\frac{1}{4}$ per cent. solution is said to be free from the risk of producing fibrous indurations, which sometimes occurs with the stronger solution. For application to mucous membranes solutions varying in strength from 10 to 20 per cent. should be used.

ARSEN-TRIFERRIN—Arsentriferrinum.—Arsen-Triferrin is an iron arsenoparanucleate containing arsenic in organic combination and standardized to contain a definite amount of arsenic by diluting with iron paranucleate. It should contain about 16 per cent. of iron, 0.1 per cent. of arsenic (As.), and 2.5 per cent. of phosphorus, all in organic combination.

Arsen-Triferrin is an orange colored, tasteless powder, soluble in dilute alkalies from which it can be precipitated by the addition of an acid. It is also soluble in about 8 per cent. of hydrochloric acid on warming.

The determination of the amount of iron, arsenic and phosphorus in arsentriferrin is carried out according to the method in "Prüfungsvorschriften für die pharmazeutischen Spezialpräparate." (Knoll & Co.)

Actions and Uses.—Arsen-Triferrin passes through the stomach unchanged and undissolved, but is dissolved in the intestines and absorbed. This behavior prevents injurious action of arsenic on the gastric mucous membrane.

Arsen-Triferrin is said to be useful in cases of anemia which are rebellious to iron alone, and in neurasthenia, hysteria, and in skin diseases.

Dosage.—5 grains three times a day after meals.

Manufactured by Knoll & Co., Chemical Works, Ludwigshafen a-Rhine, Germany and New York (Merck & Co., New York). U. S. trademark No. 36,747.

Arsen-Triferrin Tablets, 5 Grains.—Each tablet is said to contain 0.3 Gm. (5 grains) of arsen-triferrin.

Arsen-Triferrol. Elixir Arsen-Triferrini. Arsen-Triferrol is an elixir of arsen-triferrin containing in each 4 Cc. (1 fluidram) about 0.06 Gm. (1 grain) of arsen-triferrin in a menstruum containing 15 per cent. of alcohol. It is prepared by dissolving a soluble form of arsen-triferrin in a vehicle consisting of water, alcohol, tincture of orange, compound tincture of cardamon and vanillin.

OXYNTIN.—Oxyntin is a compound of protein and hydrochloric acid containing 5 per cent. hydrogen chloride (absolute hydrochloric acid) in unstable combination.

Oxyntin is prepared by combining hydrochloric acid with the albumin of fresh egg, desiccating the product at low temperature, and standardizing it to a uniform content of hydrochloric acid.

Oxyntin is a dry, granular powder, readily miscible with water, to which it imparts but a slightly acidulous taste.

The method of assay by which the acidity is determined is as follows:

1. About 1 Gm. oxyntin is weighed and mixed with 20 to 25 Cc. water and then titrated with standard sodium hydroxide, phenolphthalein being used as the indicator, and the result calculated to hydrogen chloride.

2. (a) About 3 Gm. oxyntin is weighed moistened with sodium carbonate solution in excess, dried, charred and extracted with hot water until free from chloride. The extract is slightly acidified with nitric acid and neutralized by the addition of an excess of calcium carbonate. This solution is titrated with standard silver nitrate potassium chromate being used as an indicator. From the result the total chloride content of oxyntin is calculated.

(b) About 3 Gm. oxyntin is weighed and treated as in 2 (a), the addition of sodium carbonate being omitted. From this result the fixed chloride is calculated.

The volatile chloride is calculated from the difference in the results between (a) and (b), and expressed as hydrogen chloride.

Actions and Uses.—Oxyntin is said to be useful as a substitute for dilute hydrochloric acid in the digestion of protein.

Dosage.—Being one-half the strength of diluted hydrochloric acid, U. S. P., oxyntin may be given 0.3 to 1.0 Gm. (5 to 15 grains) dry upon the tongue or in capsules, followed by a draught of water; or mixed with two or three tablespoonfuls of cold water, plain or sweetened to taste.

Manufactured by Fairchild Bros. & Foster, New York. U. S. trademark No. 50,968.

Articles Accepted for N. N. R. Appendix

Sharp & Dohme, Baltimore, Md.

Liquor Santaiva. Liquor Santali et Copaibae Compositus, S. & D. Each 30 Cc. (1 fluidounce) contains santal oil 0.3 Cc. (5 minims), and copaiba 0.6 Cc. (10 minims), dissolved in 55 per cent. alcohol with addition of aromatic oils.

Dosage. 4 Cc. (1 fluidram).

(*To be continued*)

Therapeutics

[EDITOR'S NOTE: The following is the second of a series of five articles by Professor Osborne on the revision of the Pharmacopeia. These special articles will take the place of the regular therapeutic matter, which will be resumed on the completion of this series.]

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

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NEW HAVEN, CONN.

(*Continued from page 51*)

MINERAL ASTRINGENTS

These are alum, bismuth salts, copper salts, silver salts, and zinc salts.

Alum should never be used internally, except possibly as an emetic in lead colic. It should not be used in solution in the mouth and throat, as it injures the teeth. It may be used in the form of the alum stick as an astringent in canker of the mouth, or on granular eyelids. In the former condition, viz., canker, the nitrate of silver stick tends to cause quicker healing and the pain from the application is less prolonged, and the frequency of application should not be more than once in two or three days, while the alum application must be frequent. One or two applications of nitrate of silver stick (lunar caustic) is generally sufficient to heal an ordinary canker sore. Such sores and syphilitic ulcerations in the back part of the mouth are better treated by the application of a swab wet with a 25 per cent. solution of nitrate of silver.

There is no need in the Pharmacopeia for alumini hydroxidum or for alumini sulphas.

The best astringent for inflammation of the mucous membrane of the stomach and intestine is bismuth, and, if properly used, it will always do some good and will cause many cures.

There is but little difference between the action of the subnitrate of bismuth and the subcarbonate of bismuth, the subnitrate of bismuth being perhaps the better preparation. For treatment of the mucous membrane of the stomach it must naturally be administered when the stomach is empty, and the smallest dose for such a purpose, in an adult, should be 1.0 gram (15 grains). It is often well combined with bicarbonate of soda in a 0.50-gram ($7\frac{1}{2}$-grain) dose, with the direction that a powder be taken before meals, with just sufficient water for it to be easily swallowed. Emulsions of bismuth are unsatisfactory, and any liquid mixture of bismuth is unsatisfactory, as the dose desired is rarely received on account of the bismuth depositing all over the bottle. A "milk" of bismuth is prepared, and is a very pleasant method of administering bismuth to a child. If a patient finds a powder very disagreeable to take, such powder may be administered in an effervescing water, as Vichy or carbonated water. The gas bubbles so well suspend the insoluble, heavy bismuth powder that one does not know he is taking anything more than a liquid.

It is often well, in stomach inflammations, to precede the administration of the sedative, astringent bismuth with a glass of hot water half an hour before the bismuth is taken, either plain water, or water to which a little salt has been added, or in which a simple alkaline mucus-solvent has been dissolved, such as half of a Seiler's tablet. This washes the mucus from the inflamed membrane and leaves it ready for its bismuth treatment.

If an ulcer is suspected, and if thorough coating of the stomach with bismuth is desired, it is better to take a very large dose of bismuth once a day than small doses more frequently, such as about 3 grams (45 grains) at one dose, with just enough water to swallow it.

If it is desired to treat the duodenum with bismuth, the best time to administer it is one or two hours before the next meal. This will allow the bismuth theoretically to find the duodenum empty and the mucous membrane ready for local treatment.

For an ordinary diarrhea there is no better treatment than a complete evacuation of the bowels with any cathartic deemed advisable, followed by bismuth, 1.0 gram (15 grains), and phenyl salicylate (salol), 0.30 gram (5 grains), in powder, every two hours. After ten such powders have been taken, and the diarrhea has not been stopped, the frequency of the powders should be made once in four hours, and perhaps an occasional dose of 1/10 of a grain of morphin added. This, with proper diet and proper rest, will cure any simple diarrhea.

If there is a persistent subacute or chronic diarrhea, bismuth tablets are best for prolonged bismuth treatment of the small intestine, but to expect any bismuth action on the large intestine from bismuth administered by the mouth is a mistake. Bismuth administration by the mouth for colitis in any form is futile, although bismuth colon enemas may be given with great satisfaction.

For whatever purpose bismuth is used, it should never, in any form, be given in large quantities more than a week, or in small quantities more than two weeks, without an intermission, as bismuth concretions readily form scybalous masses in the intestine and may cause considerable trouble. The bowels may move even if such masses are present, as such retained bismuth is rarely sufficient to cause obstruction.

There is no need in the Pharmacopeia for bismuthi citras, or for bismuthi et ammonii citras.

The only preparation of copper that is used therapeutically is the sulphate, and this salt is never used in any way except as a mild cauterizer in the form of the blue stick, or as a very efficient irritant emetic. The dose as an emetic is 0.30 gram (5 grains) repeated every fifteen minutes for three times if needed, or perhaps as well in a 0.50 gram (7½ grain) dose given once. Copper sulphate would not be used as an emetic except in case some poison had been swallowed after which the vomiting was not sufficient, and in any case of such poisoning, if the stomach is not quickly emptied after the emetic has been given, instead of repeating it, the contents of the stomach should be removed with the stomach pump and syphonage. If copper sulphate remained long in the stomach it would produce irritation, inflammation, and even slight corrosion; therefore, it must be removed, if it has been administered and has not been quickly vomited.

There is no systemic internal use for silver. Its only use is in the form of the nitrate as a local astringent and caustic. In fact, its use for systemic treatment or action after absorption is probably without justification. As an astringent in the stomach for ulceration and chronic inflammation it has its advocates. The dose must be small, not more than 0.03 gram (½ grain) and that administered but once a day, or, perhaps even better, once in two or three days, and this not repeated for more than five or six doses. For such action it is best prepared with some inert powder in a dry capsule, and the capsule should be uncapped just before taking with a half a glass or more of moderately hot water. It is obvious that, to act on the stomach, the stomach must be empty, and it is best that, one-half hour before, a glass of hot water with either a half a teaspoonful of salt or a little bicarbonate of soda dissolved in it, be drunk, to wash off the mucus from the stomach walls; then the nitrate of silver taken, and it being quickly dissolved in the water taken with it will perhaps have the desired local effect on the mucous membrane of the stomach.

Nitrate of silver for action on the small intestine is unsatisfactory, and it probably should never be used for this purpose. The large intestine is often treated by weak injections of nitrate of silver, when there is chronic ulceration and chronic inflammation. The solution may vary in strength, but a large amount should not be used, and if it does not all soon again pass out of the body an injection of sodium chlorid solution should be given.

In inflammation of the urethra, silver nitrate injections have been largely superseded by organic preparations of silver. These are less irritant, quite germicidal, and are not corrosive. A number of such unofficial preparations of silver can be obtained, and it is for the Committee on Revision to decide which preparations shall be made official in the next Pharmacopeia.

Solutions of nitrate of silver of varying strength are still used with benefit as high injections, in small amount, in the posterior urethra and the bladder, when chronic or subacute inflammation is present. The stick, or lunar caustic, is valuable in many ulcerations.

There is no need for argenti cyanidum, as it is only used to prepare acidum hydrocyanicum dilutum, and this acid is so useless in small doses and so dangerous in large doses that it should be omitted from the Pharmacopeia. Argenti oxidum is not needed, and it is doubtful if argenti nitras mitigatus (mitigated caustic stick) is often used.

There is no use for zinc internally for systemic action. Even the supposed sedative action of zinc valeras (valerate), zinc valerianate, is probably a myth so far as the zinc action is concerned. It is possible that valerianic acid, in any form, and valerian salts may have slight stimulant action on the higher nervous system. In other words, an hysterical patient may be stimulated to better control of nervousness. It is the only possible explanation of valerian acting as an apparent antispasmodic and sedative.

The therapeutic uses of zinc, then, are local, and it is used as an astringent on mucous membranes, and, generally, only as such, in the eye, urethra and vagina. The sulphate is the best preparation for this purpose, and there seems to be no necessity for the acetate of zinc which acts very similarly.

Zinc sulphate is often used as an emetic, and is nearly as efficient, and less irritant than copper sulphate. The dose should be a large one, viz., 2 grams (30 grains) given in a glass of water. If it is not quickly vomited, the stomach should be washed out, although it cannot corrode as can copper sulphate.

Zinc in the form of the precipitated carbonate, zinc oxid and zinc stearate is used as a sedative to irritated and inflamed skin.

Zinc chlorid is an escharotic, and liquor zinci chloridi is a disinfectant. Both are probably not needed in the next Pharmacopeia.

Zinc bromid is not needed; zinc iodid is not needed, and, as above stated, zinc valeras is also not needed.

Zinc phenolsulphonas (zinc sulphocarbolate) has been superseded as an intestinal antiseptic and is probably rarely used externally.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, JANUARY 8, 1910

X-RAY CARCINOMA

For further progress in our investigations into the etiology of cancer the thing that we most need is a method of experimentally producing cancer at will. With such a method available it will be possible to study, step by step, the transformation of normal cells into malignant cells, to observe the conditions that favor and impede such transformation, and ultimately to settle conclusively the relation or non-relation of extraneous parasites to malignant growth of tissues. The prevailing method of research, by the study of transplantable tumors in animals, while giving us invaluable information as to tumor biology, is defective in not showing us the earliest stage, the critical point when cells that were once normal members of the community of cells assume anarchistic relations to that community. One of the nearest approaches to an experimental production of cancer was made in the well-known experiments of B. Fischer, which consisted in causing an overgrowth of epithelium into oil that had been saturated with stains; but this overgrowth merely resembled cancer and never did actually become malignant; hence the results of this work have not been of great significance. In the cancers which follow *x*-ray exposures, however, we have a true malignant growth produced under conditions which can be properly considered as experimental, although involuntary. As Wolbach insists, the fact that "the subjects of these experimental carcinomas have been men instead of animals, and the observers not laboratory workers, does not invalidate the evidence."

It is, indeed, strange, in view of the striking character of *x*-ray lesions and the resulting malignant degeneration, that they have not been more systematically considered by the experimental pathologists as a source of information for the elucidation of tumor etiology. A good foundation for future work, however, is laid in the two extensive articles recently published by C. A. Porter and S. B. Wolbach,[1] which consider at length both the clinical and the pathologic aspects of *x*-ray lesions. Dr. Porter has had the unique experience of studying and operating on thirteen patients with severe lesions following exposure to these rays, in all but three of which malignant proliferation was present. In the literature he found records of thirty-four other similar cases, but this unquestionably represents by no means all the cases of this kind that have been observed. Among the most interesting features of clinical study may be mentioned the following: The *x*-ray dermatitis is a perfectly typical form of occupation dermatitis, and in the chronic variety is entirely distinct from all other forms of skin lesions. The changes are distinctly atrophic, with keratoses which are entirely comparable to the senile changes of the skin, as pointed out by Pusey. As in the senile, but much more frequently, there develops in the base of these keratoses a squamous cell carcinoma, and this malignant change, it is to be emphasized, occurs just as certainly in the neglected *x*-ray lesions of the young as in the old. In other words, *x*-rays produce senile changes in the skin, and senile epithelioma follows as a result, irrespective of the age of the individual who possesses the senile skin. As to malignancy, *x*-ray cancer is also entirely comparable to senile cancer, not tending to early or extensive metastasis, and being easily controlled if only radical measures are used in the early stages. It seems that cancer is more likely to occur in those who also subject the skin to the irritation incidental to the development of the plates than in those who do only *x*-ray work, just as the senile skin becomes cancerous chiefly at the points where it is most exposed to irritation. As the slight protection afforded by the cuffs seems to prevent *x*-ray dermatitis, Porter suspects that the harm is not done by the *x*-rays themselves, but by other emanations from the tubes.

Dr. Wolbach considers that all the changes produced by the injurious emanations, whatever they may be, are primarily of a degenerative character, and of such a nature that after a certain amount of injury has been done normal repair becomes impossible. Progressive vascular changes, leading to obliteration, keep up the degenerative processes, so that even years after the last exposure active changes are found to be still taking place. Of all the exposed tissues the epithelium is least injured, and so, as the underlying connective tissue disintegrates, the epithelium grows down to reach the deeper and less injured strata where it can still obtain nourishment. In this way the surface integrity is preserved, but with the formation of thickened layers of epithelium, from which, eventually, the carcinomas develop. By the study of many lesions at different stages it is possible to follow out the entire sequence of events in the genesis of a carcinoma, under conditions as favorable as in any animal experiment.

It will be noticed from the above account that it is the degeneration of the connective tissue which is primary to the overgrowth of the epithelium, an observation which is in harmony with the hypothesis of Ribbert, who held that the increased activity of cell growth was due to the diminished resistance offered by the surrounding tissues. It also recalls von Hansemann's "anaplasia" theory, namely, that malignant proliferation is essentially a reversion of the cells to a purely proliferative and vegetative type at the expense of functional capacity. Wolbach believes that in *x*-ray cancer the epithelial cells achieve slowly an increased power of growth at the expense of differentiation, as a result of repeated periods of overgrowth lasting for years, and under conditions of impaired nutrition, as a result of which the cells acquire the ability to gain their sustenance at the expense of other living tissue. Similar reasoning can be applied to the many other forms of surface cancer following protracted injury, such as the cancers of chimney-sweeps, aniline workers, paraffin workers, the cancers following on lupus and leucoplakia, etc., and it seems to be thoroughly logical and satisfactory. It will be observed, also, that the activity of parasites does not need to be assumed to explain the characters and genesis of these neoplasms.

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[1] Porter, C. A., and Wolbach, S. B.: Jour. Med. Research, 1909, xxi, 357; abstr. in THE JOURNAL, Jan. 1, p. 81.

There seems no evident reason why *x*-rays and the other agencies mentioned, which produce cancer so readily in man, should not be capable of producing cancer equally well in laboratory animals, once the proper conditions have been learned. If this can be done with any considerable frequency it will put the study of cancer on a better foundation than it has ever yet enjoyed, with corresponding prospects of rapid progress in our understanding of the etiology of neoplasia.

GERMOPHOBIA

The development of the science of bacteriology has given rise to a new type of 'phobia—the dread of microbes. That vague dread of the mysterious and unseen or unknown which formerly attached to gnomes and kobolds now surrounds microzoa and bacteria, beings as invisible to the unaided eye of flesh and, to the popular fancy, ten times as full of maleficent power. The very word "microbe"—innocent enough in its definition of "a little living being"—has, in the minds of most persons, an ill-defined malign implication. Science itself has encouraged, though without design, this one-sided view of the activities of micro-organisms, for, naturally, the pathogenic germs have been studied before the non-pathogenic, and largely to the exclusion of the latter. Popular writing, moreover, usually exaggerates and often distorts the obvious trend of science.

A typical example of this exaggeration is to be found in the recent book by Mr. Upton Sinclair and Mr. Michael Williams on "Good Health and How We Won It." Mr. Sinclair and Mr. Williams succeeded in regaining their health by greatly limiting their diet and by cutting meat out of their dietary. They proceed to show on the strength of statistics and observations the value of the exclusion of meat from the dietary of those who would be healthy, since bacteriologic examination shows that all the forms of meat contain immense numbers of germs. How appalling for the general public it must be to be told that an ordinary specimen of sirloin steak such as was served at the table of a prominent city hotel, when taken to the bacteriologic laboratory and examined without delay, contained nearly four hundred million anaerobic germs per gram of moist material! This was, however, "not a counter" to what was found in other food materials, fish and flesh. For instance, in round steak there were five hundred sixty million of anaerobes and four hundred twenty million aerobic microbes per gram. In large sausage there were five hundred sixty million of anaerobes and four hundred twenty million aerobes. In small sausage there were eight hundred thirty-four million aerobes and six hundred sixty-three million anaerobes. After these materials had been kept at room temperature for some hours the number of microbes in most cases very nearly doubled and sometimes more than doubled—all this in spite of the fact that these observations were made in the winter when germs are less abundant because of the diminished amount of dust in the air, and when the low temperature prevents them from growing as luxuriantly as in warmer weather.

If these statistics were to be taken as seriously as the authors suggest, it would seem utter foolhardiness to eat any meat. Especially would this be true in regard to the meats which supply the poor with their proteid nutriment, such as ham, bacon, sausage and Hamburg steak, for, even more than higher priced classes of meats, these swarm with microbes. It is evident that most people have been eating germ-laden food ever since the world began; and all who are not yet dead have survived it so far, which seems a wonder at first glance. Stolid, unscientific common sense, however, refuses to be frightened away from the food on which it has thriven for so long, and serious science finds some justification for the common-sense attitude.

Of course, the pseudoscientific fallacy lies in the assumption that all germs are dangerous, whereas, just as some macroscopic plants and animals are noxious to human beings and others innocuous, so it is with microscopic organisms. The microscopic plants that are dangerous to human life are very few indeed. We know about two score that produce seriously injurious results; and probably there are thousands of others that are either harmless or even positively beneficial. We deliberately eat certain microbes in cheese and consume their products in vinegar or in sour milk or in other food materials. Not only are these not harmful, but in proper quantities and at proper times they are adjuvants to nutrition. We deliberately encourage certain forms of fermentation (which is, after all, one kind of microbic growth) in silo for cattle and in sauerkraut for human beings and do not anticipate serious harm from the moderate use of these foods. How much the microbic flora constantly present in the intestines and increased in quantity and probably also in variety every time any kind of food, animal or vegetable, is taken, may help in digestion we do not as yet know. There is a theory, however, that these microbes of various kinds are helpful rather than hurtful in digestive processes.

An aversion to unnecessary contamination by noxious micro-organisms may well serve as a protection against disease; but an *insane terror of infection* may make life very miserable without appreciably lengthening or strengthening it. In the first place, the paradise of faultless prophylaxis—the aseptic Eden which seems to be the ideal of the germophobes—is unattainable. We cannot banish micro-organisms from our human world; we can only try to keep that balance of conditions most favorable to the life of the human organism. In the second place, the attitude of mind cultivated in the perpetual endeavor to evade disease may be almost a worse evil than the disease itself; certainly it furnishes the best excuse for the existence of those sects which deny the existence of all disease and the usefulness of any precautions. "Life is a dangerous thing at best and very few of us get out of it alive," while those of us who spend all our energies trying to elude its incidental risks might almost as well never have lived at all. Health is largely a matter of a proper balance of opposing forces; and that balance can be preserved, in part, by cultivating *a due measure of indifference to inevitable dangers.*

THE PHARMACIST AND THE NOSTRUM BUSINESS

For more than half a century the American Pharmaceutical Association has done splendid work in the interest of scientific pharmacy, its annual reports embodying a vast amount of invaluable data. Unfortunately, until within the last few years this association has dealt almost exclusively with the scientific side of pharmacy, having to a large extent ignored the economic problems of the profession; it also neglected to recognize aright the needs of the individual pharmacist and did little to encourage local organization. More recently, however, and when too late, it has extended the scope of its activities and branches have been established here and there which are dealing with local problems. By its former short-sighted policy, the American Pharmaceutical Association lost its opportunity—its hold on the retail pharmacists. By ignoring the very evident fact that pharmacy was a business as well as a profession and by refusing to recognize the equally patent fact that the very existence of pharmacy as a science was dependent on its success in coping with the economic problems involved, the association failed to appeal to the rank and file of druggists.

To fill the gap thus left, another body was organized—the National Association of Retail Druggists—whose *raison d'être* was frankly that of helping the pharmacist in his commercial dealings; it was, in brief, to deal with the druggist as a business man rather than as a professional man. This latter organization grew, and has branches all over the country. A little while ago it originated the "get-together" meetings—a splendid idea—to bring physicians and pharmacists into more intimate touch with one another. Incidental to this and connected with it was the movement to get physicians to prescribe official rather than proprietary medicines. In this the pharmacists recognized their own shortcoming in the past and expressed their desire to cooperate with physicians in an attempt to make druggists compounders of drugs instead of retailers of ready-made mixtures and to make physicians writers of real prescriptions rather than the dupes of proprietary companies.

Unfortunately the National Association of Retail Druggists has within the past few months entered into a *mésalliance* with the "patent medicine" evil in its most insidious form. It has become, apparently, the creature of a cooperative "patent medicine" concern, comprised of a number of its own members, a concern to which we devote some space in the Pharmacology Department of this issue. If the retail druggists are sincere in the propaganda which they instituted with the object of weaning physicians from the unreliable and mystery-provoking proprietaries, back to prescribing official and non-secret preparations, then let them at least be consistent. If they insist on the right to prescribe, then, *in the name of consistency, let them* prescribe official and non-secret preparations themselves instead of substituting cooperatively-made, for privately-made, "patent medicines."

The coalition is an unfortunate one, especially at a time when the medical profession and the public are keenly alive to the viciousness that is inseparable from the nostrum business. It was to be hoped at this juncture, when the so-called ethical nostrums are being discarded by physicians and the use of "patent medicines" by the laity is decreasing, that the druggists of the country would rise to the opportunity that presented itself to bring the profession of pharmacy back to its one-time position of honor. Nor for years has the time been so propitious for welding together the interdependent professions of pharmacy and medicine. We are still optimistic enough to believe that the eagerness of the retail druggists to go over, body and soul, to the nostrum business is more apparent than real, and that the present control of the National Association of Retail Druggists by an organization whose objects are so plainly inimical to the science of pharmacy is but a passing phase. The self-respecting druggist can assert himself in this matter none too soon; that this profession has so far forgotten its ideals as to lend its support to the vicious "patent medicine" business is a standing advertisement of shame to the retail pharmacy business of this country.

A NEW ERA IN PHARMACOLOGY

We published last week[1] a report of an investigation of the pharmacology of digalen, a preparation of digitalis that has been on the market a number of years and which has attracted much attention both here and abroad. There has been and still is some controversy as to exactly what the preparation is; when it was first introduced the advertisements contained a number of distinctly misleading and exaggerated statements. The latter having been eliminated, the Council on Pharmacy and Chemistry accepted it for New and Nonofficial Remedies, with, however, the following qualifying statement: "The Council has not determined whether digalen contains 'soluble amorphous digitoxin' or not, but accepts it merely as a standardized, soluble and fairly stable digitalis preparation." Hale's results show that pharmacologically it is much weaker than crystallized digitoxin (digalen is claimed to be soluble digitoxin), being more ~~like~~ digitalein, and he finds little in its pharmacologic action to indicate that it has advantages, for ordinary purposes at least, over the usual preparations of digitalis.

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[1] Hale, W.: A Comparative Study of Digalen, The Journal A. M. A., Jan. 1, 1910, p. 35.

This week[2] Dr. Hale gives the results of his experiments with another proprietary preparation of digitalis —digipuratum. These indicate that this product possesses a definite strength which, apparently, is constant, but he finds that it offers, on general grounds, no marked advantages over physiologically standardized official preparations.

Attention is called to these two articles, not primarily because of their findings, although these are of more than passing interest, but because of what such investigations mean to the medical profession. It is an encouraging sign of the times that disinterested and skilled men will thus take up the examination of proprietary drugs. It is, moreover, another evidence of the results of the work which the American Medical Association is accomplishing for therapeutics through the Council on Pharmacy and Chemistry and The Journal. Even five years ago it would have been practically impossible to find any work done on proprietary preparations except that of a purely commercial nature, with "findings" that savored more of the testimonial than of the scientific spirit. Now all is being changed. Not only are men of high professional standing subjecting the newer proprietary remedies to dispassionate and unprejudiced examination, but also—and this is of even greater moment—medical and other scientific journals are willing to publish the results of such examination, whether the findings are favorable or unfavorable. This changed attitude can only be productive of the greatest good for pharmacology. Valuable additions to materia medica will be more quickly recognized; honest but valueless remedies will more quickly be discarded, while the proprietary nostrum will be unable to pursue for long the course of vicious deception which has in the past characterized products of this class.

While wonderful advance has been made along the lines of bacteriology, pathology, physiologic chemistry, etc., comparatively little progress has been made in pharmacology. The study of therapeutics, so far as drugs are concerned, has been neglected. The one need which now confronts the medical profession is more knowledge of drugs and their physiologic and therapeutic action; and this means that there is a need of more institutions in which work such as that done by Hale can be carried on. The number of laboratories in which pharmacologic research can be done is deplorably small, yet the active practitioner of medicine is more directly interested in investigations of this nature than he is in the investigations in any other of the fundamental branches of medicine. Unfortunately, even the best among our medical colleges have been wofully slow in recognizing this fact. Efficient departments of pharmacology in our medical schools is the great need to-day.

A FINAL WORD ON TUBERCLE BACILLI IN THE BLOOD

About one year ago Rosenberger advanced his theory that tubercle bacilli are in the blood in considerable numbers in practically all cases of localized tuberculosis. But since then systematic study of the blood in tuberculous patients and in tuberculous cattle, coupled with appropriate animal experiments, have uniformly yielded wholly negative results in the hands of so many careful observers that Rosenberger's theory now must be dismissed as without any standing whatsoever. In place of marking a great step in the growth of our knowledge of tuberculosis, as was daringly prophesied, the "discovery" in reality proves to be an insignificant episode of mere evanescent interest. Probably the same fate awaits the less-noticed assertion in regard to the frequency of tubercle bacilli in the feces. An outcome of positive value from this work is the finding that water, even when distilled, may contain acid-proof bacilli strikingly like the tubercle bacillus. That the use of such water in staining for tubercle bacilli under certain conditions may lead to error is self-evident. Knowing this possible source of error, it will be easy to guard against it hereafter. Of theoretical rather than immediate practical bearing is the observation that even when very large numbers of tubercle bacilli are thrown into the blood-stream they are removed from the circulating blood with astonishing rapidity.[1]

MEDICAL SECRECY AND THE INSANE

Judge Stafford of the Supreme Court of the District of Columbia, in a recent decision, holds that the law requiring communications from a patient to his physician to be considered privileged does not apply to the evidence of an asylum superintendent as to his observations of or communications with a patient who is suing for release by habeas corpus. He held that the legislature could not have intended the law to apply to such a case, as such a construction would paralyze the government in its treatment of the insane. Even if such communications were privileged, the patient waived the privilege by instituting the proceeding. There are many difficult questions which arise in the construction and enforcement of statutes requiring medical secrecy, but in this case the judge seems to have given a straight common-sense decision. If a patient in an asylum could claim to be sane and bar out all evidence to the contrary, except what he might himself give by his conduct in court, or from unskilled underlings and casual visitors, a very large proportion of the most dangerous inmates of the state hospitals could very easily obtain their liberty, and society would have no defense whatever against the possible consequences.

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[2] The Comparative Strength of Digipuratum, page 129, this issue

[1] Anderson: Bull. 57, Hyg. Lab., U. S. P. H. and M.-H. S.; Sawyer, Wilbur A.: Tubercle Bacilli in the Blood, Arch. Int. Med., 1909, iv, 628.

Medical News

ALABAMA

Personal.—Beginning with the October issue, Dr. Henry A. Moody became associate editor of the *Gulf States Journal of Medicine and Surgery* and *Mobile Medical and Surgical Journal.*——Dr. Paul E. Gwin, Bessemer, has resigned as city physician and has taken charge of the Woodward Ironworks Company at Dolomite, vice Dr. Lycurgus Thomas, deceased.

County Societies Elect Officers.—At the annual meeting of the Mobile County Medical Society, held December 19, Dr. William R. Jackson was reelected president; Dr. Marion J. Bancroft, vice-president; Dr. Stephen F. Hale, secretary, and Dr. Marion T. Gaines, librarian, all of Mobile. Dr. Calvin N. Owen, Mobile, was reelected a member of the board of censors.——Tallapoosa County Medical Association, at its annual meeting, held in Dadeville, December 14, elected Dr. William T. Langley, Jr., Camp Hill, president; Dr. James O. Griffin, Hackneyville, vice-president; Dr. Aaron L. Harlan, Alexander City, secretary; Dr. Neal B. Dean, Alexander City, treasurer, and Dr. James A. Goggans, Alexander City, county health officer.——At the annual election of Madison County Medical Society, held in Huntsville, December 14, the following officers were elected: Dr. Claud C. Pettus, Huntsville, president; Dr. Marion R. Moorman, Huntsville, vice-president; Dr. Edgar Rand, Huntsville, secretary-treasurer; Dr. William C. Wheeler, Huntsville, censor; Dr. William W. Haden, Huntsville, monitor; Dr. James F. Burnam, Huntsville, county health officer; Dr. Ollie B. Patton, city health officer of Huntsville; Dr. Benjamin E. Graham, health officer of Gurley; Dr. Luther L. Wikle, health officer of Madison; Dr. William C. Wheeler, Huntsville, jail physician, and Dr. Ernest Walker, physician of the poor-house.

COLORADO

New Sanatorium.—The nuns of the Order of St. Francis plan a sanatorium for tuberculosis on one hundred acres of land secured near Denver. The sanatorium is to be designed both for the wealthy and poor, the proceeds from the treatment of the former to be used to defray the expenses of the latter.

Denver Deaths.—During the year ended Dec. 1, 1909, there were 3,186 deaths from all causes in Denver, as compared with 3,358 in the preceding year. The deaths from typhoid fever and pneumonia were decreased and deaths from tuberculosis increased. Suicide passed typhoid fever as cause of death and took the tenth place on the list.

Women Physicians of State Meet.—The Colorado Woman's State Medical Society held its annual meeting at Denver, December 28, and elected the following officers: Dr. Kate Lindsay, Boulder, president; Drs. Lucy M. Wood, Boulder, and May B. T. Kruse, Denver, vice-presidents; and Dr. Kate E. Geiger Yont, Denver, secretary-treasurer.

DISTRICT OF COLUMBIA

Dinner to Col. Havard.—The officers of the medical corps on duty in and around Washington gave a farewell dinner to Col. Valery Havard, prior to his retirement from active service, at which the surgeon-general presided.

Surgeon-General Entertained.—Brigadier General George H. Torney, Surgeon-General U. S. Army, spent December 6 and 7 in Philadelphia. He was guest of honor at a dinner at the Union League Club, made an address on "The Medical Officer of the United States Army" before the Northwestern Medical Society. During his stay in Philadelphia, General Torney was the guest of Dr. Clarence B. Franklin.

Personal.—Surgeon-General Walter Wyman, P. H. and M.-H. Service, has sailed for Port Limon, Costa Rica, to attend the International Sanitary Conference of American Republics.——Dr. Thomas A. Lee has resigned as resident physician at the Casualty Hospital.——Surgeon William C. Braisted, U. S. Navy, has been assigned to special duty as general supervisor of the construction of hospitals at naval stations and has been succeeded as assistant to the chief of the bureau of medicine and surgery by Surgeon Frank L. Pleadwell.——Dr. Charles S. White sustained a serious sprain of the left wrist and right knee in a collision between his automobile and a street car, November 24.——Dr. Charles P. Grandfield has been appointed postmaster of Washington.——Dr. Joseph J. Kinyoun, who resigned as professor of bacteriology and pathology in George Washington University, has been appointed bacteriologist of the District Health Department.——Dr. and Mrs. Walter A. Wells have returned from Europe.

GEORGIA

Personal.—Drs. Nicholas Peterson, Tifton, and Thomas R. Wright, Augusta, have been appointed trustees of the Georgia State Sanitarium, Milledgeville.——Dr. Charles M. Curtis has been made chairman, and Dr. James T. Henley, secretary of the College Park Board of Health.——Dr. Bernard McH. Cline, Milledgeville, has been appointed a member of the staff of the State Sanitarium.——Dr. Charles G. Giddings, a member of the visiting staff of Grady Hospital, Atlanta, has resigned.

Society Meetings.—At the annual meeting of the Sixth District Medical Society, held in Macon November 10, the following officers were elected: President, Dr. James A. Combs, Locust Grove; vice-president, Dr. Johnson M. Moore, Macon, and secretary-treasurer, Dr. Irby H. Adams, Macon.——The annual meeting of the Second District Medical Society was held in Albany, November 10. Dr. James M. Barnett, Pretoria, was elected president; Dr. C. Kosciusko Sharp, Arlington, vice-president, and Dr. Francis M. Martin, Shellman, secretary-treasurer.——At the annual meeting of the Tenth District Medical Association, held in Augusta November 9, Dr. Noel M. Moore, Augusta, was elected president; Dr. Joshua R. Beall, Blythe, vice-president; Dr. George A. Traylor, Augusta, secretary-treasurer, and Dr. Wyman W. Pilcher, Warrenton, councilor.——The Macon Branch of the State Antituberculosis and Sanitary Society was organized at Macon, December 7. Dr. Charles C. Harrold was elected president; Dr. Herbert Respess, vice-president; Dr. Samuel B. Palmer, secretary, and Dr. G. T. Miller, censor.——Ware County Medical Association, at its annual meeting held in Waycross, December 7, elected the following officers: President, Dr. Robert P. Izlar, Waycross; vice-president, Dr. James C. Rippard, Waycross; secretary-treasurer, Dr. Albert Fleming, Waycross; delegate to the state society, Dr. Charles R. Oglesby, Waycross; alternate, Dr. William R. Moore, Patterson, and censors, Drs. John L. Walker, Charles R. Oglesby and James H. Latimer, all of Waycross.

ILLINOIS

Food Standard Commission.—On December 6, the governor appointed as members of the State Food Standard Commission Charles E. M. Newton, "a representative of the Illinois Food Manufacturing Industries," and Dr. Walter S. Haines, Chicago, "an expert food chemist of known reputation" in accordance with the requirements of the law, and these gentlemen constitute the State Food Commission, with Mr. A. H. Jones as chairman, Dr. T. J. Bryan, 1620 Manhattan Building, Chicago, as corresponding and recording secretary. Among the early subjects to be considered are ice cream, condensed milk, and evaporated milk. The commission will not make a standard until it has fully investigated both the scientific data with reference to the products, and the trade conditions and customs relating thereto. It requests all interested to submit briefs in triplicate to the secretary of the commission at as early a date as possible. After these briefs have been considered, a public hearing will be given to those interested, for the presentation of evidence and arguments.

Personal.—Dr. Benjamin E. Gleeson, Danville, has been appointed local oculist and aurist to the Illinois Traction System and the Chicago and Eastern Illinois Railway.——Drs. George W. Mitchell and J. C. Osterbeck, assistant physicians at the Bartonville State Hospital, have resigned as the result of action taken by the Illinois Civil Service Commission.——Dr. M. William Fitzpatrick, Decatur, has been elected physician of Macon county.——Dr. John F. Taylor, Buda, has been obliged to give up practice on account of ill health, and will soon leave for Montana.——Dr. Francis E. Melugin, Thomson, was operated on recently at Mercy Hospital, Clinton, for disease of the gall-bladder.——Dr. Martin Saucerman, Rock Grove, has left Freeport Hospital, where he has been a patient for the past six weeks.——Dr. Effie Current, formerly of Danville, who went to Colorado for her health, has taken up professional work in a tuberculosis sanatorium in Brush.——Dr. Robert C. Bourland, Rockford, has been appointed district medical examiner by the civil service board.——Dr. Harry C. Hill and family, Streator, leave January 15 for Europe.——Dr. William M. Richards, Joliet, was operated on for appendicitis at Silver Cross Hospital, December 24.——Dr. Emma B. Standley, Alexis, is taking a trip to the Orient.——Dr. Ira O. Paul, Winnebago, was thrown from his sleigh, December 24, fracturing his left hip.

Chicago

Personal.—Dr. Henry D. Shonts is critically ill with pneumonia at his home.——Dr. Myer Nuta was operated on for double hernia by Dr. Thomas Jonnesco, December 22.——Dr. and Mrs. Jacob Frank have left for Europe and the Orient. ——Dr. Eleazar A. LaMothe has been elected professor of ophthalmology in the Chicago Eye, Ear, Nose and Throat College.——Dr. Thomas F. Doyle was seriously burned on the head and face by a gas explosion in his bath room, December 19.

Gifts to Hospitals.—By the will of the late Thomas Murdock, who died Christmas day, one-third of $2,500,000 is devised to the Presbyterian Hospital, to be used for an endowment fund, to be known as the Jane Murdock Memorial Fund, in memory of the sister of the donor.——A gift is said to have been made to the Iroquois Memorial Association, sufficient to complete the building fund for the hospital to be erected at 87 Market street, which is to cost between $50,000 and $75,000.

Hospital Committee Named.—The president of the Board of Commissioners of Cook County has appointed a committee of six, consisting of Dr. William L. Baum, the warden of the County Hospital, the county attorney, and three county commissioners to meet a similar committee appointed by the city council, consisting of Drs. William A. Evans and Heman Spalding, the corporation counsel, and three aldermen, to discuss ways and means of turning over the county hospital to city control.

Chicago Mortality in 1909.—During 1909, 31,262 deaths were reported, equivalent to a death rate of 14.05 per 1,000. Of the dead, 6,392 were under 1 year of age, 2,972 between 1 year and 5 years, 1,949 between 5 and 20 years, 13,169 between 20 and 60 years, and 6,734 over 60 years, and 46 of unknown age. Chief among death causes were pneumonia, with 4,962 deaths; tuberculosis, with 3,870; diarrheal diseases, with 3,560; heart diseases, with 2,897; violence, with 2,388; and nephritis, with 2,338. Diphtheria caused 675 deaths, scarlet fever, 360; typhoid fever, 269; measles, 174; and whooping cough and influenza, each 151.

KANSAS

Medical Board Wins Case.—In the case of D. J. Smith, Athol, who was prosecuted by the State Board of Medical Registration and Examination on the charge of practicing medicine without a license, the defendant is said to have entered a plea of guilty and promised to cease practice, whereupon the minimum fine of $50 and costs was imposed.

Personal.—Dr. Christian B. Stemen, who located in Kansas City, Kan., several years ago, has returned to his old home in Fort Wayne, Ind., and will resume practice there.——Dr. George W. Hochrein, first assistant physician at the State Insane Hospital, Topeka, has resigned.——Dr. Lot D. Mabie has been appointed a member of the Kansas City Board of Health.

Society Meetings.—At the annual meeting and election of Shawnee County Medical Society, held in Topeka, December 6, the following officers were elected: Dr. Charles F. Menninger, president; Dr. Melancthon C. Porter, vice-president; Dr. H. Milton Connor, secretary; Dr. Samuel A. Johnson, treasurer; Drs. Herbert L. Alkire, William E. McVey, and Daniel E. Esterly, delegates to the state society, and Drs. Samuel A. Johnson, Clarence A. McGuire, and Robert S. Magee, alternates, all of Topeka.——Lyon County Medical Society, at its annual meeting and banquet, held December 6, in Emporia, elected the following officers: Dr. Charles W. Lawrence, president; Dr. Clarence A. Neighbors, vice-president; Dr. James F. Worley, secretary-treasurer; and Drs. Frank A. Eckdall, Thomas F. Foncannon and Oliver J. Corbett, all of Emporia, censors.

LOUISIANA

Quarantine Station Purchased.—The State Board of Health has sold to the United States government, for $100,000, the quarantine station at the mouth of the Mississippi.

Personal.—Drs. Charles M. Menville, Joseph B. Duval, and Hugh St. Martin have been elected members of the Houma Board of Health.——The New Orleans City Council has reelected Drs. William H. Robin, William T. O'Reilly, and Oliver F. Ernst members of the board of health.——Dr. and Mrs. Thomas L. Mills, Zachary, celebrated the fiftieth anniversary of their marriage, November 22.

Antituberculosis League Election.—At the annual meeting of the Louisiana Antituberculosis League, held December 9, the following officers were elected: Dr. Luther Sexton, New Orleans, president; Drs. George Dock and George S. Bel, New Orleans, vice-presidents; Dr. J. George Dempsey, New Orleans, secretary; and Dr. George S. Brown, New Orleans, treasurer. Drs. Clifford H. Irion, Benton, Edward L. McGehee, New Orleans, Charles Chassaignac, New Orleans, and Stanford E. Chailler, New Orleans, were elected honorary vice-presidents of the league.

Elections.—At the annual election of Orleans Parish Medical Society, held in New Orleans, December 11, the following officers were elected: President, Dr. Benjamin A. Ledbetter; vice-presidents, Drs. Eugene H. Walet, P. Leonce, Thibaut, and Charles N. Chavigny; secretary, Dr. Charles P. Holderith (reelected); treasurer, Dr. Howard D. King (reelected); librarian, Dr. Homer Dupuy (reelected), and directors, Drs. William H. Seemann, Arthur Nolte, and Joseph T. DeGrange, all of New Orleans.——Shreveport Medical Society held its annual meeting, December 7, and elected Dr. Oscar Dowling, president; Dr. Thomas P. Lloyd, vice-president; Dr. Arthur A. Herold, secretary (reelected), and Dr. John A. Hendrick, treasurer (reelected). A resolution was passed by the society denouncing the alleged practice of certain members of the society of issuing prescriptions for intoxicating liquors for other than medicinal purposes.

MARYLAND

Medical Corps to Be Organized.—Medical officers now serving with the regiments in the militia will be assigned to the medical corps as provided by the new state militia law, thus making the organization similar to that of the medical corps of the U. S. Army.

Health Department Banquet.—The ninth annual banquet of the health department of Baltimore was held December 28, Dr. James Bosley, commissioner of health being the guest of honor. Among the speakers were the mayor, Drs. Bosley, C. Hampson Jones, William R. Stokes, and Eugene H. Hayward.

Pure Food Laws.—A final public hearing of the advocates of the three pure food bills proposed for presentation to the legislature was given by the commission appointed by the governor, December 29 and 30. Wholesale drug men and representatives of the state medical society were not agreed regarding the administration of the law, the former opposing and the latter advocating its administration by the State Board of Health. After an animated discussion the following section was approved: "The State Board of Health shall have the power to appoint a pure food and drug commissioner at a salary of $2,500 a year, whose duties shall be exclusively the administration of this law under the direction and supervision of the said State Board of Health." This compromise section is said to be satisfactory to the various interests involved. At no time was there any expression of lack of confidence in the State Board of Health, and the secretary of the board was strongly endorsed by the attorney-general, by Dr. William H. Welch, and by Dr. James Bosley.

Organization of Home for Widows and Orphans of Physicians.—The board of managers of the Home for Widows and Orphans, founded by the Medical and Chirurgical Faculty of Maryland Home was organized December 28. The members of the committee of the fund for the relief of widows and orphans of deceased members are considered members ex officio of the board. Rules for the government of the board were adopted. Great enthusiasm was manifested by the ladies who were honored by the society with the conduct and responsibility of this great charity, the first of the kind undertaken by a medical organization in America. The following officers were elected: Mrs. John S. Fulton, president; Mrs. Sophia Cook Waters, vice-president; Mrs. William B. McDonald, recording secretary; Mrs. E. L. Whitney, corresponding secretary; Dr. Eugene F. Cordell, treasurer; executive committee, Mrs. William J. Todd, Mrs. David Streett, Mrs. Nicholas L.

Dashiell, Miss Constance Kuch, and the officers ex officio. The board expects to have the home in operation in a few months. ——The Ladies' Auxiliary for the Fund for the Relief of Widows and Orphans is making arrangements for a supper, concert and sale to be held February 2 and 3.

MISSISSIPPI

Vital Statistics.—The legislative committee of the Mississippi State Medical Association has framed a bill creating a state bureau of vital and mortuary statistics and also a bill authorizing the state board of health to inaugurate a campaign of education and hygiene, and providing adequate appropriation therefor.

Amendment to Medical Practice Act.—Dr. Peter W. Rowland, Oxford, chairman of the legislative committee of the Mississippi State Medical Association has forwarded to the governor a bill which the latter is said to have approved, and which bars from application for license to practice medicine, all persons who have not completed a four-years' course in a reputable medical college, and regulates the compensation of county health officers.

Definition of the Practice of Medicine.—An amendment to the Medical Practice Act, proposed by the state medical association, thus defines the practice of medicine: "The practice of medicine shall mean to suggest, prescribe, recommend, or direct for the use of any person any drug, medicine, appliance or other agency whether material or not material, for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief for any wound or fracture or other bodily injury or deformity, or the practice of obstetrics or midwifery, after having received or with the intent of receiving therefor either directly or indirectly any bonus, gift, profit or compensation."

Medical Societies Meet.—The Newton-Neshoba-Winston Tri-County Medical Association, at its annual meeting held in Newton, elected the following officers: Dr. George H. McNeill, Newton, president (reelected); Drs. Joseph N. Whittle, Union, and W. D. Davis, Deemer, vice-presidents; Dr. Sidney A. Majure, Dixon, secretary-treasurer; Drs. Joseph N. Whittle, Union, Sidney A. Majure, Dixon, and Daniel J. Rush, Philadelphia, censors; Drs. William G. Allen, Newton, and Daniel J. Rush, Philadelphia, delegates to the state medical association, and Drs. Z. Carl Hagan, Decatur, and W. D. Davis, Deemer, alternates.——At the annual meeting of the East Mississippi Four-County Medical Association, held in Houston, Dr. Richard M. Boyd, Houston, was elected president; Dr. Andrew J. Brand, Buena Vista, vice-president for Chickasaw county; Dr. B. H. Durley, Aberdeen, vice-president for Monroe county; Dr. Thomas F. Elkin, Tupelo, vice-president for Lee county; and Dr. John T. Senter, Fulton, vice-president for Itawamba county.

MISSOURI

Superintendent Wins Judgment.—In the case of Dr. William F. Kuhn, formerly superintendent of State Hospital, No. 2, St. Joseph, for salary for the months of July and August, Judge L. J. Easton, on December 18, made an order that judgment be entered against the board of managers in favor of Dr. Kuhn for the amount demanded.

Physicians in Trouble.—Dr. L. W. Miller, Kirksville, is said to have been fined $800 by a jury, December 13, on four charges of illegally writing prescriptions for liquor.——Dr. Hume, Columbia, whose license to practice medicine was revoked by the State Board of Health, has appealed his case to the supreme court.——The State Board of Health, at its session December 7, is said to have revoked the license of Dr. J. Frank Gullic, Koshkonong, on account of drunkenness, and that of Dr. Calvarcero Benedetto Tripirao, Kansas City, on the charge of practicing medicine with a diploma alleged to have been obtained fraudulently, and which he claimed had been issued by a college in Palermo, Sicily.——On the charge that he prescribed intoxicating liquor promiscuously, the State Board of Health has revoked the license of Dr. G. A. Meyer, Buffalo.

St. Louis

Cancer Research.—The directors of the St. Louis Skin and Cancer Hospital have made an appropriation of $6,000 a year for the study and investigation of the cause and treatment of cancer.

Annual Meeting of St. Louis Society.—The St. Louis Medical Society, at its annual meeting, December 27, elected the following officers: President, Dr. Henry Schwartz; secretary, Dr. Carroll Smith; treasurer, Dr. J. Henry Amerland; councilors, Drs. George Homan, Cyrus E. Burford, Robert M. Funkhouser, Henry C. Dalton, Walter H. Fuchs, Frederick C. E. Kuhlmann, Henry J. C. Sieving, Henry Schwartz, Albert F. Koetter, John C. Morfit, Clarence M. Nicholson, and William E. Sauer; delegates to the state association, Drs. William W. Graves, J. Henry Amerland, Thomas A. Hopkins, Herman L. Nietert, George C. Crandall, Vilray P. Blair, Louis H. Hempelmann, Louis Rassieur, Willard Bartlett, Walter Baumgarten, Joseph Gridon, Walter C. G. Kirchner, and Malvern B. Clopton, and alternates, Drs. Paul Y. Tupper, William E. Sauer, Frederick J. Taussig, Horace W. Soper, Jesse S. Myer, George Homan, E. Lee Dorsett, William G. Moore, William H. Luedde, Albert F. Koetter and Warren P. Elmer.

NEW JERSEY

Free Visits to Poor Only.—A committee of the Woodbury City Council conferred with the Woodbury Physicians' Association, on December 31, for the purpose of deciding on a method whereby the worthy poor of the city might be cared for free and not those who refuse to work. It is likely that in the future it will be necessary to secure an order from some official to get free medical aid, and then the city will pay a stipulated price to the physician.

William Pierson Library Lecture Course.—The William Pierson Medical Library Association announces the following lecture course: January 18, "Perversion of Stomach Digestion," Dr. George R. Lockwood, New York City; February 15, "Chronic Ulcer of Stomach and Duodenum," Dr. Max Einhorn, New York City; March 15, "Carcinoma of Stomach," Dr. Walter B. James, New York City, and April 19, "Surgery of Stomach," Dr. Joseph C. Bloodgood, Baltimore.

Personal.—Dr. Andrew F. McBride, mayor of Paterson, is reported to be ill with septicemia, due to an operation wound. ——Dr. Harry M. Harman has resigned as a member of the Frenchtown Board of Education, and has been appointed medical inspector of schools.——The citizens of German Valley have made up a purse for Dr. William James, who recently sustained serious losses in a fire.——Dr. Edwin E. Bond has succeeded Dr. David M. Gardner as health officer of Caldwell. ——Drs. Harry B. Slocum and William K. Campbell have been appointed medical examiners of school children for Long Branch.——Dr. J. Edward Blair, Burlington, is reported to be seriously ill with pneumonia.——Dr. Arthur H. Dundon, Plainfield, has succeeded Dr. Frederick J. Hughes as school physician.

NEW YORK

Sanitarium Burned.—The sanitarium of Dr. F. T. King, Little Farm, near White Plains, was burned to the ground, December 30, at an estimated loss of $20,000. The patients were all removed.

Efforts to Educate Defectives Unsatisfactory.—Leonard P. Ayres, lecturer for the Russel Sage Foundation, states that it costs New York City about $1,250,000 a year in a fruitless effort to teach children who are so handicapped by physical defects that their mental faculties are deadened. From two-thirds to three-fourths of all the pupils in the day schools suffer from physical defects, and in spite of physical examinations the defects go uncorrected. It has been observed that there are more accidents among backward than among normal children.

New York City

Brooklyn Health Department Moves.—The Health Department of Brooklyn moved, January 1, to the new municipal building, which is at the Flatbush avenue extension and Fleet place.

Appoint Coroner's Assistants.—The following assignments of coroner's assistants have been made for the ensuing year: Dr. Phillip F. O'Hanlon, Dr. Albert I. Weston, Dr. Otto H. Shultze and Dr. Timothy D. Lehane.

Harvey Lecture.—The fifth lecture of the present course of Harvey Society lectures will be given January 15 when Prof. Ludvig Hektoen, of the University of Chicago, will speak on "Certain Phases of the Formation of Antibodies."

Personal.—The East Side Physicians' Association has elected the following officers: President, Dr. William M. Leszynsky; vice-presidents, Drs. Max Ghertler and Sigmund Epstein; secretary, Dr. David Satenstein, and treasurer, Dr. Herman C. Frauenthal.——Dr. H. Holbrook Curtis was the guest of honor at a dinner at the Harvard Club on December 28, given by his former assistants and associates who are now residing in New York City. The party consisted of Drs. George E. Brewer, David O. Edson, Wm. Ledlie Culbert, Percy E. D. Malcolm, Nathaniel B. Potter, Hampton P. Howell, Rufus P. Hubbard and Lawrence D. Alexander.

Low Death Rate for 1909.—Dr. Darlington announces that the death rate in this city for the year 1909 was the lowest ever recorded officially. The rate was 16.24 per thousand population, while for the preceding year the rate was 16.52. There was a falling off in the number of deaths from typhoid fever and measles, but an increase in the number of deaths from scarlet fever, diphtheria, influenza, tuberculosis and organic disease.

Alumni Association Prize.—The Prize of the Alumni Association of the College of Physicians and Surgeons, Columbia University, is a biennial prize valued at $500 open for competition to the alumni of this college and is awarded for the best medical essay submitted on any subject. The essay must contain the results of original investigations made by the author. The prize will be awarded at commencement, 1910, and essays must be sent in before April 1.

NORTH CAROLINA

Medical Men Elect Officers.—At the annual meeting of the Iredell-Alexander County Medical Society, held in Statesville, December 6, the following officers were elected: Dr. William G. Nicholson, Harmony, president; Dr. Archibald A. Campbell, Statesville, vice-president; Dr. John E. McLaughlin, Statesville, secretary-treasurer, and Dr. E. E. Kluttz, Troutman, delegate to the state society.——Yadkin County Medical Society, at its annual meeting, December 6, elected Dr. Calvin M. Holcomb, Chestnut Ridge, president; Dr. Thomas R. Harding, Yadkinville, vice-president, and Dr. John L. Woltz, Booneville, secretary-treasurer, and delegate to the state society.

Decision for Hospital.—More than two years ago, after a most atrocious crime had been committed by a lunatic recently discharged by order of the directors from the State Hospital at Morganton, a suit for damages was instituted against the directors by friends of the deceased. The case was fought through the lower courts and was last week decided in favor of the directors. The order reads: "The directors and superintendent of a hospital for the insane under the provision of Revisal 4596 in discharging or releasing a patient therefrom cannot be held responsible for damages by the subsequent killing of such a patient by another, under the charge of negligence, Revisal 4560."

PENNSYLVANIA

Antituberculosis League Election.—At the annual meeting of the Wilkinsburg Antituberculosis League, December 14, Dr. Theodore Baker was elected corresponding secretary, and Drs. Clyde W. Semple, James M. McNall, David B. Beggs, Stewart L. McCurdy and Silas G. Wertz, directors.

Nurses Registered in Pennsylvania.—The State Board for the Registration of Nurses announces that it has no affiliation with any other board, society, hospital school or sect of medicine. Its object is to protect the public and the medical profession against persons not properly educated for the responsibilities of a nurse. The board at its recent meetings granted registration to 485 applicants. These, by Act of Assembly, approved May 1, 1909, are privileged to use the title "registered nurse" or its abbreviation, R.N., and to wear the pin authorized by the board.

Personal.—Dr. Jason G. Hanks, Breezewood, Pa., while making a professional call, December 18, was thrown from his automobile, breaking his collar bone, ribs, and receiving severe contusions.——Dr. Jacob Rothrock, manager of the Mont Alto Sanatorium, has been selected as superintendent of the new sanatorium to be built by the Reading Society for the Prevention of Tuberculosis, at Neversink Mountain.——Dr. J. Paul Roebuck, Lititz, has been appointed physician to the eye, ear, nose and throat department, Dr. D. Galen McCaa, Lancaster, pathologist, and Dr. Walter B. Weidler, Lancaster, consultant to the eye, ear, nose and throat department of the Lancaster General Hospital.

Philadelphia

[illegible] t Meeting.—A joint meeting of the [illegible] Society and the New York Neurological Society was held December 18, in Thomson Hall, College of Physicians. The meeting was followed by a smoker at the Rittenhouse Hotel. A report will appear in The Journal.

Personal.—John A. Vogelson, an engineer of construction in the filtration division of the bureau of water, was appointed, December 31, chief of the bureau of health vice Dr. Alexander C. Abbott, resigned.——Dr. Mary M. Wolfe has been appointed professor of psychiatry in the Woman's Medical College. Dr. Wolfe was until recently resident physician at the women's department of the Norristown State Hospital for the Insane.

German Hospital Surgical Conference.—The physicians visiting the surgical clinic of the German Hospital have formed a society to be known as the German Hospital Surgical Conference, which has as its objects "the advancement of its members in the science and art of medicine and the promotion of a free and open discussion of cases presented, of operations performed, of methods, technique and treatment used in the German Hospital surgical clinic." Regular meetings will be held at the German Hospital on Tuesday and Friday afternoons of each week at 3 p. m. and at each meeting a special reporter will present a résumé of the work done in that clinic during his term of service. The following officers were elected: President, Dr. Luther Williams, Indianapolis; vice-president, Dr. Alexander, Annapolis, Md., and secretary-treasurer, Dr. Albert D. Whiting, Philadelphia.

Officers Elected.—At a meeting of the North Branch of the Philadelphia County Medical Society held December 21, Dr. Samuel P. Gerhard was elected chairman and Dr. Jesse O. Arnold, clerk.——The Kensington Branch of the Philadelphia County Medical Society elected the following officers: Chairman, Dr. Thomas R. Currie; vice-chairman, Dr. John J. Gilbride, and clerk, Dr. Harry S. Bachman.——At the meeting of the West Philadelphia Medical Association, the following officers were elected: President, Dr. Sherman F. Gilpin; vice-president, Dr. Hiram L. Lutz; secretary, Dr. Henry G. Munson; financial secretary, Dr. William M. Miller, and treasurer, Dr. Edmund L. Graf.——At a meeting of the South Branch of the Philadelphia County Medical Society, December 30, the following officers were elected: President, Dr. William N. Bradley; secretary, Dr. Joseph S. Kitchen, and associate vice-president to the county medical society, Dr. R. Oliver Kevin.

SOUTH CAROLINA

Smallpox on Board Steamer.—The British steamer *Winifred* is being held at the quarantine station, Charleston, with one case of smallpox and two suspicious cases on board.

Antituberculosis League Formed.—The physicians of Lexington county have formed a temporary antituberculosis league with Dr. Ransom H. Timmerman, Batesburg, president, and Dr. G. Frank Roberts, Lexington, secretary.

Elections.—At the annual meeting of Anderson County Medical Society, in Anderson, December 6, the following officers were elected: Dr. James R. Young, president; Dr. R. Lee Sanders, vice-president; Dr. W. Frank Ashmore, secretary-treasurer, and Dr. Joseph O. Wilhite, censor, all of Anderson.——Florence County Medical Society, at its annual meeting, held in Florence, December 6, elected Dr. John G. McMaster, Florence, president; Dr. Dudley H. Smith, Florence, vice-president; Dr. Edward M. Allen, Florence, secretary-treasurer; Dr. Albert G. Eaddy, Timmonsville, delegate to the state association, and Dr. Lawrence Y. King, Florence, censor.——At the annual meeting of Chester County Medical Society, held in Chester, December 6, Dr. William B. Cox, Chester, was elected president; Dr. Samuel G. Miller, Chester, vice-president; Dr. W. R. Wallace, secretary-treasurer, and Dr. John P. Young, Richburg, delegate to the state association.——Columbia Medical Society, at its annual meeting, December 13, elected Dr. Samuel E. Harmon, president; Dr. Robert A. Lancaster, vice-president; Dr. Mary R. Baker, secretary, and Dr. Francis A. Coward, delegate to the state association.——Williamsburg County Medical Society held its annual meeting in Scranton, December 21, and elected the following officers: Dr. Irvine M. Woods, Sardinia, president; Dr. Thaddeus B. Hinnant, Lake City, vice-president; Dr. Edward T. Kelley, Kingston, secretary; Dr. Clarence D. Rollins, Lake City, treasurer; Drs. William S. Lynch, Scranton, and S. B. W. Courtney, Lake City, censors; Dr. Clarence D. Rollins, Lake City, delegate to the state association meeting, and Dr. Juline D. Eaddy, Lambert, alternate.——Clarendon County Medical Society, at its annual meeting, held in Manning, December 22, elected Dr. Charlton E. Gamble, Turbeville, president; Dr. A. S. Todd, Manning, vice-president; Dr. Charles B. Geiger, Manning, secretary-treasurer; Dr. A. S. Todd, Manning, delegate to the state association, and Dr. Henry L. Wilson, Jordan, alternate.

WASHINGTON

Medical Societies Incorporate.—The incorporation is announced of the Washington State Medical Association by Drs. William D. Kirkpatrick, Bellingham, O. Lewis Adams, Davenport, Burt Thomas, Walla Walla, et al., and the King County Medical Society, of Seattle, by Drs. Grant Calhoun, Robert M. Smith, and Louis H. Redon, et al.

Antituberculosis Activities.—The Antituberculosis League of King county has purchased eighty acres of land on the east side of Lake Washington, on which to erect a sanatorium to accommodate sixty tuberculosis patients. Dr. Robert M. Stith is to be medical director of the institution.——As the result of the sale on Button Day, more than $6,000 was raised in Seattle for the relief of sufferers from tuberculosis.

Children's Hospital.—The plans for the proposed Children's Orthopedic Hospital, Seattle, have been prepared. The new building is to cost $75,000, of which $63,350 is already available. The hospital is urgently needed, as during October and November, 8 crippled children were refused admittance on account of the crowded condition of the present quarters.

Personal.—Dr. William F. Armann, Ritzville, has returned from abroad.——Dr. Marion F. Setters, Spokane, who is said to have been temporarily suspended two months ago for alleged unprofessional conduct in advertising a sanitarium in the lay press in connection with an unlicensed practitioner, was reinstated on bringing proof before the board showing that he had severed his relations with the practitioner referred to and with the sanitarium.

Society Meetings.—At the annual meeting of Whatcom County Medical Association, held in Bellingham, December 13, the following officers were elected: Dr. John W. Goodheart, Bellingham, president; Drs. C. Beebe, D. S. Clarke, and Ernest S. Reedy, Blaine, vice-presidents; Dr. H. Max Mehlig, Bellingham, secretary; and Dr. George F. Cook, Bellingham, treasurer.——At the third annual banquet of the Spokane County Medical Society, December 20, the guest of honor was Dr. Darius Mason, Spokane, a practitioner of fifty-six years' experience. Dr. Harold H. McCarthy, Spokane, was toastmaster, and 125 members of the profession of Spokane and the neighboring district were in attendance. Dr. Wallace W. Potter, Spokane, responded to the toast, "Our Guest."

How the Plague Problem was Handled in Seattle.—The occurrence of three cases of bubonic plague in Seattle in October, 1907, caused a campaign of cleaning to be instituted by the Public Health and Marine-Hospital Service, and also induced the city to reorganize its health department. The present head of that department is Dr. James F. Crichton, who was appointed in March, 1908, for five years. He is given ample authority to enforce the health ordinances of the city, and in its organization the department ranks with the best. The city maintains a chemical and bacteriologic laboratory and the plague laboratory conducted by the Public Health and Marine-Hospital Service is also maintained by the city. There is inspection of markets, milk and other foods, contagious diseases are reported and quarantined in the case of smallpox, diphtheria, scarlet fever and plague, and the occurrence of a case of contagious disease is reported by the health department to the police department, the superintendent of schools and the public library, with the location of the case. The population is 276,000, and the death rate, on the reorganization of the health department, dropped from 9.27 in 1907 to 7.35 per 1,000 in 1908. The low death rate may be attributed in part to the fact that the population is largely of the pioneer class, young and strong. Tuberculosis is the most frequent cause of death, there being 218 cases in 1908. The city maintains a charity hospital of 56 beds and also a contagious disease hospital, although there is urgent need for a larger one. There are a number of private hospitals, but further hospital accommodations are needed. The city water supply comes from the Cedar river and is brought by gravity 28 miles from an elevation of 6,000 feet. The water is good and contains from 70 to 4,000 bacteria per c.c., being greatest in the rainy season. The city has 5 miles of water front mostly occupied by wharves of cheap timber construction, and sanitation, particularly against rat plague, is difficult. However, no plague has been discovered among rats since September, 1908. The subject of building a sea wall and filling the space inside has been agitated, but there are difficulties in the way. The sewage is disposed of by the gravity system, being discharged far out in the sound. The city produces 200 tons of garbage daily, and maintains at present one incinerator with a capacity of 70 tons. The rest of it is dumped into the sound or in the low places about the city. This is one of the sanitary questions demanding attention as is also that of a larger contagious disease hospital. The ever present danger of bubonic plague invasion requires unceasing vigilance, as it does in all the Pacific coast towns.

GENERAL NEWS AND COMMENT

Medical Journal for the Laity.—We have received the first issue of the *Layman's Medical Journal*, to which we referred December 18. This little monthly magazine is published by the Wisconsin Medical Woman's Association, Oshkosh, for the education of the public in matters of health. Subjects to be considered are: "Hygiene, sanitation, water, milk and food supplies, and the knowledge of preventable diseases." The first number contains articles on the fight against tuberculosis, prevention of scarlet fever, duty of the physician to the school child, sanitation, and ventilation, besides a number of useful hints regarding such common ailments as frost bite and catching cold. There is a question corner and subscribers are encouraged to ask questions concerning health.

Typhoid in Bermuda.—"The Spectator" in the *Outlook*, December 11, after describing the beauties and advantages of the Bermuda Islands as a resort, says "the single drawback to a summer in Bermuda is the ever present possibility that a typhoid germ in active health may be wending its silent way into one's insides." He goes on to say that the disease has been endemic in the islands for a century past and is very prevalent. Even the cultured Englishmen on the island show an astonishing ignorance of its causes and the methods of its prevention. There are few screens in the windows and millions of flies. The sanitary arrangements are apparently poor, and, while the law requires water tanks to be screened, it is often done with a half inch mesh, which would of course keep out cats and dogs but not mosquitoes or other germ-carrying insects.

A Peerless Champion.—Under this title, *Collier's Weekly* for December 25 has the following comment on one of the leaders in the movement against animal experimentation, whose zeal in the cause is only equalled by his superb disregard for facts: "The antivivisectionists are planning a grand coup. They are about to send the most eminent antivivisectionist in the world to visit us—Hon. Stephen Coleridge. He is the son of the late Lord Chief Justice of England. He has done in his lifetime several ungentlemanly and several misleading things which makes it unfortunate that he should be selected as a representative of a cause. He was, for instance, guilty of trying to ally the British Museum with his own personal propaganda by means of a cheap and somewhat ungentlemanly trick. He asked the librarian in the British Museum to give him a competent translator, to translate for him a catalogue of one of the physiological instrument manufacturing companies. He then put on the title-page of the translation the title of the librarian in the British Museum, as if lending favor to his antivivisection crusade. The librarian called what Mr. Coleridge had done an 'unwarrantable abuse of a mere act of courtesy.' Another time Mr. Coleridge, without investigation, saw fit to repeat the wild and picturesque statements of the beautiful Miss Lind-af-Hageby. She had claimed to have seen many quaint and piteous happenings inside the laboratory of Dr. Bayliss, University College, London. Her remarks, fortunately, were confined to private life. But Mr. Coleridge eagerly trumpeted them forth from a platform. He was sued by Dr. Bayliss and had to pay heavy damages, to the extent of nearly $25,000— £2,000 for damages and nearly £3,000 for trial costs—for his falsification. Many instances of his false statements and his gift for twisting facts into malicious fiction will be found in the blue-books of the proceedings of the Royal Commission on Vivisection. This is the gentleman who will so shortly visit us and continue his romancing on an important department of science."

CANADA

Tuberculosis Fund Doubled.—The government has decided to appropriate $10,000 annually, instead of $5,000, to prevent the spread of tuberculosis.

Children's Hospital.—The Children's Hospital at Halifax, N. S., celebrated Children's Day, December 22. The hospital was opened for inspection December 20. The institution can accommodate 14 patients, but can be made to accommodate 23 patients.

Hamilton Physicians Meet.—The annual meeting and dinner of the Hamilton Medical Association was held December 1. Dr. Douglas G. Storms was elected president; Dr. John P. Morton, vice-president; Dr. Alexander D. Unsworth, corresponding secretary; Dr. Daniel P. Kappele, recording secretary, and Dr. Marshall E. Gillrie, treasurer.

Personal.—Dr. Oscar Klotz, assistant in pathology at McGill University, Montreal, has been appointed professor of pathology in the University of Edinburgh.——Dr. Abraham K. Malouf, Montreal, has been elected president of the Letellier Club.——Dr. James M. McCarter, Verona, is reported to be ill in Kingston Hospital with typhoid fever.——Dr. Robert J. Manion, health officer of Fort William, Ont., has resigned.

Names Stricken from Roll.—By a vote of 17 to 7, the council of the Ontario College of Physicians and Surgeons, on December 10, is said to have decided that Dr. William R. Cook, Toronto, was guilty of "infamous and disgraceful conduct in a professional respect," and that "his name be erased from the register of the college forthwith."——On the same day the council decided to strike from the register the name of Dr. Stephen B. Pollard, who is now said to be serving five years' imprisonment for the performance of a criminal act.

Dominion Registration.—At a special session of the Ontario Medical Council, held in Toronto, December 11, the proposed amended Roddick or Canada Medical Act was presented and affirmed. The amendment to this act was the result of a meeting of the special committee on dominion registration, held in Montreal, through whose act the principle was reaffirmed, the Quebec delegates alone standing out against the act as at present on the statute book, objecting chiefly to what would purport to be the infringement of provincial rights in the matter of education and examination. The composition of the proposed dominion council is as follows: Three members from each province, appointed by the governor-in-council; a number of members representing each province, fixed in each case by the number of practitioners registered under the laws of the province in the proportion of one for the first 500, one for the next 1,000 or fraction thereof, and for all over 1,000, one, and never more than three; one from each university or incorporated medical college engaged in the active teaching of medicine; and one member to be appointed by the governor-in-council or elected from the members of any distinct school of medicine who are entitled to practice by the laws of any province. The amended bill also provides for the first meeting in Ottawa, appointment of registrar, and reciprocity with Great Britain. Any person who has practiced six years in any province of Canada may, on payment of the necessary fees, be registered to practice in any province.

Milk Defined.—The government has prepared a scheme for proposed food standards which classifies milk and its products, as milk, modified milk, skim milk, pasteurized milk, sterilized milk, certified milk, condensed milk, and evaporated milk. The standard for pasteurized milk is milk which has been maintained for twenty minutes at a temperature of 150 F. or thirty minutes at a temperature of 140 F., and immediately thereafter refrigerated to 45 F. and kept at that temperature until delivered to the consumer; certified milk is described as milk examined and guaranteed by any local board of health or incorporated society or association of legally qualified medical practitioners. Cows are to be subjected to the tuberculin test semiannually and be found without reaction. Milk must contain not more than 10,000 bacteria per cubic centimeter, must be free from pus, blood, preservatives and all foreign matters, and must not have been heated.

FOREIGN

New Queen of Belgium a Physician.—The wife of the new king of Belgium is the daughter of the late Duke Karl Theodor of Bavaria, whose death we recorded Dec. 11. She always took great interest in her father's scientific work and used to assist him in his eye clinic and hospital. She early announced her intention to study medicine, but it met with strenuous opposition on the part of all her relatives with the exception of her father. Under his encouragement she began to study medicine with him at the age of 16 and completed her course, obtaining her medical degree at Leipsic, not long before her marriage. She continued her medical studies in Brussels, and founded there the Albert-Elizabeth tuberculosis dispensary, which has been doing excellent service in prevention and cure of tuberculosis among the poor. Until her recent accession to the throne she was a daily visitor and took an active part in its work.

LONDON LETTER

(From Our Regular Correspondent)

London, Dec. 25, 1909.

Extension of the Work of a Medical Defence Society

At present there are two medical defence societies in this country. On payment of a subscription of $2.50 per annum the defence of a physician will be undertaken against actions brought against him by patients for negligence. Such actions are usually vexatious or speculative and brought with the aid of unscrupulous lawyers, by patients who have no money. If the physician wins a verdict with costs he is unable to recover from an impecunious plaintiff. The result has been that in addition to the worry of litigation the physician has to pay a considerable sum, sometimes as much as $5,000, to defend himself against a baseless charge. Membership of a medical defence society relieves him of this and often prevents such actions, when the patient and his lawyer find that the physician has a strong society at his back which cannot be intimidated. But if the physician is unfortunate enough to lose his case all that the society will do is to pay the costs of his defence. He will be liable for any damages and costs which may be given against him. For some time the London and Counties Medical Protection Society has been considering the advisability of arranging for an insurance of the members against damages and costs up to $10,000, but the proposal received little support from the members. Circulars and requests to attend a meeting for the purpose received only a small number of positive replies and fewer negative ones, the majority of the members not replying at all. To do this it would be necessary to raise the subscription to $5. After a long discussion the society has now decided to arrange with an insurance company for a policy covering these risks. The council of the society will strictly guard their rights to conduct the trials in what way they think proper.

Dentists and the Royal College of Surgeons

The Royal College of Surgeons has celebrated the jubilee of its recognition of dentistry as a profession and institution of the licentiateship in dental surgery (L.D.S.). Fifty years ago the practice of dentistry in this country was in a chaotic condition and much behind that in America. There was no recognized dental diploma and druggists and even artisans practiced dentistry and described themselves as dentists. The college was the first licensing body in the United Kingdom to institute a diploma in dentistry. In the fifty years which have elapsed great progress has been made and dentistry has ceased to be merely an art and been transformed into a science taking rank with ophthalmology, laryngology and the other specialized branches of medical science. This progress has been largely due to the work of the Odontological Society which has now become merged as one of the sections of the Royal Society of Medicine. It accumulated a magnificent collection of 5,000 specimens, probably the most extensive and valuable ever brought together to illustrate the anatomy, embryology and pathology of the teeth. This collection includes the original specimens of pigs' teeth by which John Hunter demonstrated by administration of madder that the teeth are laid down layer by layer with the growth of the body. These specimens were used by Hunter for the preparation of his book on "The Natural History of the Human Teeth," published in 1771. There are specimens of early English skulls side by side with modern specimens showing that the crowded uneven teeth so common at the present day are due to a decrease in the size of the jaws with the advance of civilization. A similar contrast is shown by comparing predynastic Egyptian skulls with those of the civilized ages of the Egyptian kings. The jaws and teeth of 1,500 species of animals from fossil fishes to the monkey are represented. Sets of artificial teeth from the first crude attempts in 1790 up to the perfect specimens of the dental art of the present day are exhibited. This invaluable collection has now been transferred to the keeping of the Royal College of Surgeons. It is housed in a large room in the basement with the dental specimens already in the museum of the college.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Dec. 23, 1909.

Lecture of Dr. Debove on the Rôle of Medicine

Professor Debove, former dean of the Paris medical school, gave some time ago at the School of Higher Social Studies, an interesting lecture on the rôle of medicine. To-day, said Dr. Debove, there are certain medical concepts of which no one has the right to be completely ignorant. The philosopher is particularly interested in mental pathology. It should be no longer possible to study philosophy without knowing a little of anatomy and physiology. We have decentralized the faculties of the mind and we know that it is not the brain alone which exercises an influence on the mentality of the individual. The intellectual and moral faculties may be influenced by an alteration of the suprarenal capsules or of the thyroid gland. These concepts are such as to modify our ideas in regard to human responsibility. It is necessary then that the philosopher should be somewhat of a physician; but it is also necessary that the physician should be somewhat of a psychologist, for how many moral diseases he is called on to treat! One division of morality is only a branch of medicine, namely, that which relates to the conservation of the race and to reproduction of the species. Dr. Debove particularly emphasized the dangers of depopulation, which are increasing each year in France.

He then pointed out the importance of medicine in war. Statistics prove that in war disease is an important factor. In 1870 we lost 23,470 from variola while the Germans lost only 450, which shows how important it is that commanders of armies should take medicine into account. In closing Dr. Debove dwelt on the evil effects of the great poisons of the human race: opium, alcohol, etc. In order to combat the lamentable condition created by alcoholism in particular, Debove recommends early school instruction in hygiene. By showing children all the dangers of alcoholism, which peoples our insane asylums and our prisons and which is unfavorable to the reproduction of the species, it may be possible to make young people shun alcohol. It is necessary also to educate the people in regard to tuberculosis and while insisting on the precautions to be taken against tuberculosis, Dr. Debove made a strong argument in favor of the compulsory reporting of tuberculosis.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Dec. 15, 1909.

Personal

Prof. P. Krause, lately appointed professor extraordinary and head of the medical policlinic at Bonn, who has distinguished himself by investigation of the prevailing epidemic of acute spinal paralysis in the Rhine country and Westphalia, has been made a regular professor.

As successor of Prof. H. Kossel, Prof. R. Neumann of Heidelberg has been appointed director of the hygienic institute at Giessen.

Dr. Holle, formerly minister of education, who was compelled by illness to abandon his post a year or so ago, after a brief incumbency, has now succumbed to his disease, a severe brain affection of an arteriosclerotic nature, developing in consequence of the great pressure of work involved in the activities of the department of education. He was only 54 years old.

Dr. Jastrowitz, of Berlin, a well-known physician for mental diseases, celebrates his seventieth birthday on the twentieth of this month. The *Verein für innere Medizin*, whose secretary Jastrowitz was for many years, has elected him an honorary member.

Dr. R. Lennhoff, one of the founders of the forest convalescent stations mentioned in my former letter, has received the title of professor. He is the editor of the *Medizinische Reform*, a weekly journal devoted to social medicine and hygiene, and has won distinction for his systematizing and practical development of social medicine.

Municipal Medical Affairs

The city has made a supplementary appropriation of $24,000 (100,000 marks) for treatment at sanatoriums (*Heilstättenkuren*).

The board of aldermen has asked the administration to provide as soon as possible for the erection of large, simply constructed forest convalescent stations for weakly children of both sexes, to be opened the entire year.

The city government has decided to erect at Rummelsburg, a suburb of Berlin, a hospital with 150 beds for patients with female diseases.

International Institute for Medical Bibliography

An international institute for the bibliography of medicine and the related natural sciences has just been founded and is to publish a central organ which shall abstract the entire medical literature. In addition there is to be established an information bureau for questions regarding medical and scientific literature. Professor Aberhalden of Berlin is to be the editor of the *Centralblatt* in question.

Infant Mortality in Prussia

The infant mortality of Prussia after a temporary decrease before 1908 shows now a slight increase. Of 1,000 legitimate children born living there died in the first year of life in the cities 157 as contrasted with 154 in 1907; in the country 166 instead of 162. The average from 1886 to 1890 was 210 in the cities and 187 in the country; from 1896 to 1900, 195 and 185, and from 1901 to 1905, 181 to 178. It is evident that the infant mortality has been materially reduced and further that it has decreased to an extent distinctly greater in the city than in the country so that the infant mortality is now generally smaller in the cities than in the country. The chief reason for the more marked reduction of infant mortality in the cities is to be sought in the greater improvement in the hygiene and care of infants in the cities as compared with the rural districts. Others attribute the difference to the marked reduction of the birth rate in the cities; the extra fertility of the country women tends to lessen the consciousness that infants need special care. Furthermore, the removal of part of the infants, shortly after birth, from the city to the country tends to increase the death rate of the country and to lessen that of the cities. The two latter factors, however, are surely of minor importance compared with the former. The death rate of illegitimate children, which as is well known always surpasses that of the legitimate children, after a previous marked decrease shows an increase as compared with the previous year, the figures being 291 (in 1907: 281) in the cities, and 307 (1907: 205) in the country. The average from 1891 to 1905 was 385 for the cities and 336 for the country; from 1901 to 1905, 329 for the cities, and 322 for the country.

Marriages and Births in Germany

While for the last twenty years the number of marriages has about paralleled the increase of the entire population, the birth rate shows a menacing decrease. Since 1896, the birth rate has dropped about a fourth. In 1888, with a population of 48,168,000 the number of marriages was 376,654 and the number of births 1,828,379 (of which 66,972 were still-births). In 1898, with a population of 54,406,000, the number of marriages was 458,877, and of births 2,891,000 (65,960 still-births). In 1907 the population was 62,083,000, the marriages numbered 503,964 and the births 2,060,973 (61,040 still-births).

Outdoor Schools for Higher Grades

Charlottenburg will found in Grünewald an outdoor school for children of the upper grades. The school is to open in the middle of April and continue until the summer vacation and then be resumed until the end of September. During the summer vacation the forest school will be rented as a vacation colony. With this rent and with the tuition money it is hoped to meet the expenses of maintenance which are estimated at $8,000 (32,500 marks). The tuition is placed at $70 (290 marks) for each pupil, and the school is planned to accommodate 120. Free tuition is to be provided for some pupils and for this purpose the city of Charlottenburg will assume one-fifth of the expense. The cost of the establishment of the school was provided by a private benefactor who contributed $8,500 (35,000 marks).

Bills in the German Reichstag

For the present session of the Reichstag a large number of bills dealing with public hygiene and education have been presented by the various parties. These bills are submitted for discussion in the Reichstag and after their adoption are laid before the federal council for further action. A bill has been introduced providing for united action by the individual state governments of the empire by which the threatening influx of foreign students to the German universities shall be restricted in the interests of our own people. (This has to do principally with the increase of Russian students who, without sufficient preparatory studies, often crowd the German universities, and by securing the best places thus discommode and injure the German students.)

In regard to housing reform, the imperial chancellor is requested to appoint a committee from the official representatives of the kingdom and the various federal states and from the members of the Reichstag and from others who have scientific and practical knowledge of the housing question, to develop a uniform plan for the settlement of this problem. In addition the imperial chancellor is to be requested to prepare a bill for a law to provide for persons accidentally injured in the saving of persons or of goods, especially in voluntary aid at fires and in drownings. Also a bill to ensure a successful campaign against tuberculosis in those classes of the population especially affected with this disease; particularly in reference to ways and means for disinfection of infected dwellings.

Centennial of the Hufeland Society

February 1, 1910, the *Hufelandische Gesellschaft* of this city celebrates its centennial. The society was founded by the renowned Hufeland who was the first professor of medicine at the university which was established in 1810. The jubilee of this society is also to a certain extent the first event in the centennial of the Berlin university itself which, as previously mentioned, is to be celebrated next August.

Pharmacology

THE AMERICAN DRUGGISTS SYNDICATE

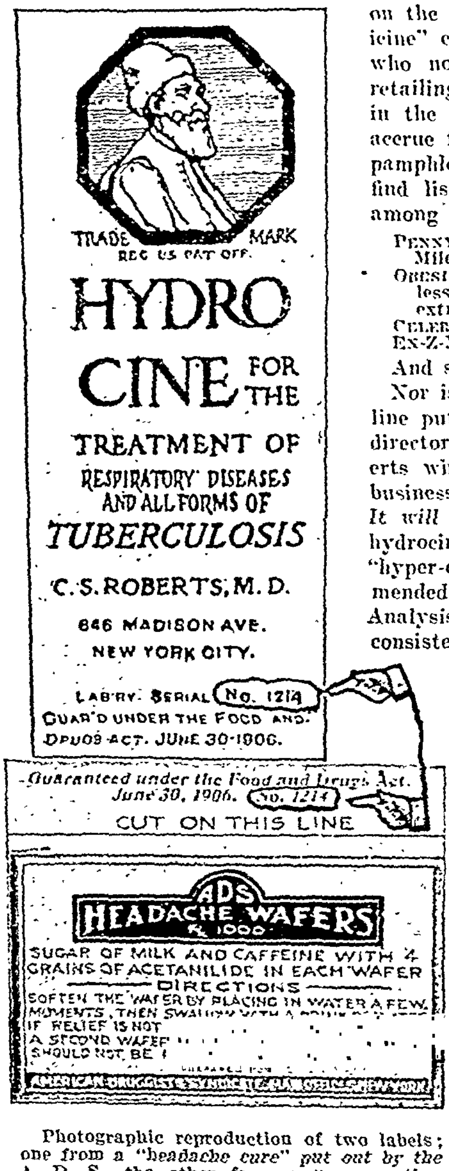
An Arrangement Whereby Retail Druggists Become Wholesale Nostrum Manufacturers

For years the manufacturers of "patent medicines" have been reaping a golden harvest at the expense of the public's purse and health. Naturally those druggists who think more of profits than pharmacy and dollars than decency have, to a large extent, participated in the dividends of the nostrum exploiters in the capacity of distributors. More recently, however, the growth of "department store" druggists and other "cut rate" concerns have made serious inroads on the profits to be realized by the sale of "patents." This loss of profits, in turn, has led many of the none-too-particular druggists to take stock in one or the other of the cooperative enterprises that have entered the field to "out-Herod Herod" in the matter of exploiting ready-made remedies to cure all diseases that human flesh is heir to.

Of these organizations, one of the most impudent in its claims and obnoxious in its methods is the American Druggists Syndicate, more euphoniously known as the A. D. S. This concern, which has been referred to before in The Journal,[1] was founded by one C. H. Goddard, formerly a newspaper man in California and interested in the mining business. According to the advertisements, the A. D. S. is an association of retail druggists "who are daily compounding thousands of prescriptions written by the most eminent physicians of the country."

> "They not only compound these prescriptions, but they are in daily contact with the patients, and thus have an opportunity of watching their results and those which prove the very best by practical tests are forwarded by each druggist member to the A. D. S., and from the thousands presented, a competent board of physicians and chemists select the premium prescription and offer it to the public in a ready-made package."

Despite all that has been said about the general harmfulness of ready-to-take panaceas, and despite all of the positive knowledge that we now have regarding the immediate, as well as the remote damage done by taking "patent medicines," we have here the appalling evidence that a very large number of retail druggists, men that should and no doubt do know at least something of the harm that is being done by nostrums, are openly cooperating in the manufacture and exploitation of nostrums! Baldly stated in their own words: "The American Druggists Syndicate Places the Profit Side of the Patent Medicine Business Where it Belongs"—that is with the retail druggist.



TRADE MARK
REG US PAT OFF.
HYDROCINE FOR THE TREATMENT OF RESPIRATORY DISEASES AND ALL FORMS OF TUBERCULOSIS
C. S. ROBERTS, M. D.
846 MADISON AVE.
NEW YORK CITY.
LAB'RY. SERIAL No. 1214
GUAR'D UNDER THE FOOD AND DRUGS ACT. JUNE 30-1906.

Guaranteed under the Food and Drugs Act. June 30, 1906. No. 1214
CUT ON THIS LINE

ADS
HEADACHE WAFERS
℞ 1000
SUGAR OF MILK AND CAFFEINE WITH 4 GRAINS OF ACETANILIDE IN EACH WAFER
DIRECTIONS
SOFTEN THE WAFER BY PLACING IN WATER A FEW MOMENTS, THEN SWALLOW [illegible]
IF RELIEF IS NOT [illegible]
A SECOND WAFER [illegible]
SHOULD NOT BE [illegible]
AMERICAN DRUGGISTS SYNDICATE [illegible] NEW YORK

Photographic reproduction of two labels; one from a "headache cure" put out by the A. D. S., the other from a "consumption cure" (Hydrocine, now called Oleozone), exploited by C. S. Roberts, one of the original directors of the A. D. S. Notice that the serial number on the two labels is the same, indicating a common source.

These preparations are objectionable because they tend to mislead and harm the purchaser, degrade the morals of the men who make and sell them, and discredit all who are in any way connected with the drug business, or with pharmacy.

As an illustration of the generally objectionable nature of these preparations we would call attention to:

> A. D. S. Pelvitone: "A blessing to weak women. A purely vegetable compound." "Is the prescription used by the most eminent and successful physicians." ". . . was selected . . . by an association of three thousand successful druggists." "Try one bottle and you will recommend it to your afflicted lady friends."

Is this ethically, morally, or scientifically on a higher plane than the Lydia Pinkham or the Pierce nostrums?

> A. D. S. Headache Wafers: "This prescription was selected from a thousand as the very best, most effective and safest remedy on earth for headache." "Will positively relieve you and not hurt the heart." [Each wafer contains four grains of acetanilid!—Ed.]

Wherein is this better than the thousand-and-one other headache cures that flood the nostrum market?

> A. D. S. Brain and Nerve Tonic: "It feeds both brain and nerves." "A scientific nerve food." "It never fails."

Truly a scientific (?) preparation. The courts of the District of Columbia have decided that the words "brain food" are "false and misleading."

These are but examples of the preparations put on the market by this cooperative "patent medicine" concern—a concern comprised of druggists who not only get the regular commission for retailing these nostrums, but who, by owning stock in the A. D. S., participate in the profits that accrue from their manufacture. In the advertising pamphlets distributed by the A. D. S., we also find listed "A remedy for every ailment," and among dozens of others, the following:

> Pennyroyal Pills: "For female irregularities. Mild and safe."
> Obesity Remedy: "Removes fat slowly and harmlessly." [Harmless? Asserted to contain thyroid extract!—Ed.]
> Celery Compound: "Great for nervous disorders."
> Ex-Z-Mo: "It will cure eczema."

And so on *ad nauseam.*

Nor is the "patent medicine" business the only line put out by the A. D. S. One of the former directors of this organization was Dr. C. S. Roberts whose activities in the "consumption cure" business The Journal has had occasion to expose. *It will be remembered that Dr. Roberts exploits* hydrocine (now called oleozone), the marvelous "hyper-oxidized hydrocarbon" which he recommended as "a positive cure for tuberculosis." Analysis of Dr. Roberts' product disclosed that it consisted of 95 per cent. sugar and small quantities of volatile oils and a trace of pancreatin. This mal-odorous sugar mixture is now manufactured in the A. D. S. nostrum factory as the reproduction of the hydrocine label shows.

One of the advertising schemes of the A. D. S. is the sending out of a Pullman car containing an exhibit of A. D. S. products. This advance agent of the nostrum manufacturers was labelled "A Druggist Organization for the Protection of the Public Health!" After this, can we blame Dr. Hartman, of Peruna fame, and Lydia Pinkham, for posing as public benefactors?

Summed up, what does it all mean?

It means that the druggists constituting the A. D. S. are concerned not with scientific pharmacy, but with the marketing of nostrums.

It means that the filling of physicians' prescriptions is being utilized by many retail druggists as a cloak of respectability to hide their real object in business, and finally:

It means that the medical profession in its fight against "patent medicines" of a harmful nature is deprived of a part of the assistance that should be forthcoming from pharmacists.

THE N. A. R. D. AND THE A. D. S.

For some months it has been persistently rumored that the National Association of Retail Druggists, more familiarly known as the N. A. R. D., has become in effect a creature of the A. D. S. While there have been denials of this, particularly in the pages of *N. A. R. D. Notes,* the official organ of the National Association of Retail Druggists, the secretary of this association recently admitted that with two exceptions all of the officers of the N. A. R. D. are now A. D. S. men.

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[1] Feb. 16, 1907.

Even with this admission, however, it might be considered that these A. D. S. members were interested in the N. A. R. D. in their individual capacity were it not for the positive statement recently made by Secretary Goddard of the A. D. S., who, in the *Voice of the Retail Druggist* (the A. D. S. house organ) for October, 1909, says:

> "*Notes*, the official organ of the N. A. R. D. seems to be ashamed of the action of the delegates of its organization at the last annual meeting in electing an A. D. S. man as president, and they try to make it appear that the newly elected president was chosen by the 'Old Guard,' of which he was a great favorite.
>
> "This is a most surprising position for *Notes* to take for many reasons:
>
> "First: Because it is not in accordance with the facts.
>
> "Second: Because it should be proud that its organization is at last officered by a man who is (through his prominent connection with the A. D. S.) a recognized representative of the retailers. . . .
>
> "If *Notes* is still in doubt as to the attitude of its subscribers toward the A. D. S., we would suggest that the editor of that publication submit the matter to its members, for we feel sure that if it were left to a vote of its subscribers, a large majority would not be unfriendly, for the reason that organization druggists generally are almost a unit behind the A. D. S. . . .
>
> "I cannot go into further details, but if I were in the retail business, I would get busy pushing A. D. S. preparations. You cannot lose, and it offers unlimited possibilities."

And this, it should be remembered, comes, not from a pharmacist, but from an erstwhile country newspaper publisher and promoter, who does not hesitate to tell the druggists of the country how to conduct their business—and not a few of them seem to be willing to accept his advice.

Incidentally, it may be added that the president of the N. A. R. D. was—last month—unanimously reelected president of the A. D. S.

From what has been said, then, it appears that the "Great American Fraud" has secured the unequivocal endorsement of a majority of the members of an association that might have been a powerful influence for good, in safeguarding the public welfare.

Altogether, it is deeply to be regretted that at least a very large number of pharmacists are as yet quite unwilling to dissociate themselves from the "trickery, treachery, humbug, fraud and lies" with which the nostrum business is so inextricably involved, and it is devoutly to be hoped that the very near future will bring with it a means for differentiating between the nostrum advocate and the pharmacist who is content to do a legitimate business.

In closing, let it be said that against the cooperative plan in itself there can be no objection. No one, except the druggists themselves, realizes more keenly than do physicians, the disgraceful way in which the "patent medicine" and proprietary interests have exploited for their own gain the retail druggist. And it must regretfully be admitted that the medical profession itself has been in no small degree responsible for this state of affairs—at least with regard to proprietaries. That druggists should revolt against the tyranny of these conditions is not only natural but encouraging; organization has no better field. If by cooperation the pharmacists of the country can produce legitimate products, well and good; the public will be the gainer. But that they should combine for the purpose of engaging in such a nefarious trade as that of the "patent medicine" business, not only fails to redound to the credit of pharmacy but at once damns the cooperative company thus engaged.

TANSAN MINERAL WATER

"One Use for a Senatorial Frank"

"Physicians are being solicited by mail to buy stock in The Tansan Mineral Water Company, 'an investment opportunity of unique possibilities,' shares one dollar each. The promoter is G. C. C. Howard, 'Eastern Manager and Selling Agent,' 1626 Spruce Street, Philadelphia. Mr. Howard avoids a large part of the expenses common to promoters of his kind, by distributing some of his literature postage free under the frank of the Hon. Boies Penrose. Senator Penrose's home is pretty close to 1626 Spruce Street; nevertheless we are sure his faults, which are many and big, do not include this sort of petty advantage of his Senatorial privilege."—Mark Sullivan, in *Collier's Weekly*.

Correspondence

Institutional Care for the Epileptic

To the Editor:—In a recent number of THE JOURNAL there appeared a query as to the institutions devoted to the care of epileptics in this country. The following is a list of the state institutions which are devoted exclusively to the care of epileptics:

Ohio.—Ohio Hospital for Epileptics, Gallipolis, Ohio. Dr. W. H. Pritchard, Superintendent. Founded 1892. Present census, 1,499. This institution cares for both the sane and insane epileptic, and it is contemplated to increase its capacity by 200 and remove all the insane epileptics thither from the state hospitals. The buildings are rather large detached buildings.

New York.—Craig Colony for Epileptics, Sonyea, N. Y. Dr. W. T. Shanahan, Superintendent. Founded 1894. Present census, 1,320. Intended only for sane epileptics of high grade, but there are also a considerable number of low-grade cases. The buildings are small cottages for the better classes and larger buildings for the low-grade. A new combined institution has recently been established in the eastern part of the state which may eventually relieve the Craig Colony of some of its lower-grade cases.

Massachusetts.—Massachusetts Hospital for Epileptics, Palmer, Mass. Dr. Everett Flood, Superintendent. Present capacity, 900. Only sane epileptics are received. Buildings for children are recently available. Buildings are small cottages.

New Jersey.—New Jersey State Village for Epileptics, Skillman, N. J. Dr. D. F. Weeks, Superintendent. Census, 305. Small cottages. The school facilities are excellent.

Kansas.—Hospital for Epileptics, Parsons, Kan. Dr. M. L. Perry, Superintendent. Census, 462. Takes both sane and insane epileptics. Both small and larger buildings are used, according to the mental grade of the patient.

Texas.—Epileptic Colony, Abilene, Texas. Dr. T. B. Bass, Superintendent. Census, 375. All classes of epileptics except the low-grade mentally are received.

Indiana.—Indiana Village for Epileptics, New Castle, Ind. Dr. W. C. Van Nuys, Superintendent. Sane epileptics only are received. The buildings are small cottages. Census, 116.

North Carolina.—Epileptics are cared for in connection with one of the state hospitals. The epileptic department is subordinate to the superintendent of the hospital.

Virginia.—A site has been purchased for a colony.

Connecticut.—The last legislature appropriated $25,000 for the purchase of a site and the erection of buildings. The work is in the hands of a commission.

Illinois.—Illinois has had for some time an act providing for a colony but no money was obtained to purchase a site or build cottages. There has been great activity in Illinois of late in the direction of a colony.

There are many state institutions in which epileptics are received along with other defectives, either the feeble-minded or the insane. There are also some semiprivate enterprises caring for epileptics:

The Passavant Memorial Homes for the Care of Epileptics, Rochester, Pa. Census, 57.

The Emmaus Asylums, St. Charles and Marthasville, Mo., are patterned after the great colony at Bielefeld, Germany, and hence care for many classes of unfortunates. Epileptics make up the largest number of their charges.

The Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne, Pa., under the presidency of Dr. Wharton Sinkler, is a semiprivate charity. Census, 86.

The Silver Cross Home, Port Deposit, Md., also cares for many epileptics.

There has recently been organized in Philadelphia an association having as its object the obtaining of employment for epileptics. Dr. Matthew Woods, of Philadelphia, is one of the leaders.

The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, under the presidency of Dr. W. F. Drewry, of Petersburg, Va., attempts to bring into closer touch those who have as a common interest the study of the epileptic and his needs; it serves as a source of information on the subject and endeavors to stimulate interest in its field in states where there is no care at present for the epileptic.

The colony or village seems to be the form of institution most generally favored. The epileptic is unfitted by his disease for life in the outside world, and in the properly designed state institution he finds not only care, but the stimulus and opportunity to make the most of what abilities he has.

The segregation of epileptics in institutions has an additional value, aside from the good accruing to them and their friends by their removal from home surroundings—namely the prevention of the increase of the disease through procreation by the epileptic. The more advanced standpoint, advising compulsory procedures looking toward the prevention of procreation by defectives of any sort, meets the earnest support of any one conversant with the family histories of epileptics.

J. F. Munson, Sonyea, N. Y.

Improved Method of Applying the Plaster Jacket

To the Editor:—In The Journal, December 25 (page 2158), is an article by Dr. K. D. Panton of Vancouver, advocating an improved method of applying the plaster jacket. I am not in any sense decrying the advantages of the method, though I have considered it rather an emergency method than one of choice. My purpose in writing is to call attention to the fact that in the second edition of Bradford and Lovett's "Orthopedic Surgery," brought out ten years ago, there is on page 50 a drawing by myself, illustrating precisely the same method, which had then been in use in this community for some years. I do not know who originated it, but suspect that the method has been used by various men, who have worked out the mechanical problem for themselves, just as Dr. Panton has done. There is, I think, no question of originality involved, but purely one of priority.

Frederick J. Cotton, Boston.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INSTRUCTION IN HYGIENE IN PUBLIC SCHOOLS

To the Editor:—Please refer me to matter relative to the teaching of physiology and hygiene in the public schools.

Juanita J. Lea, M.D., Detroit.

Answer.—To mention only a few, the following articles may be of use to you:

Putnam, Helen C.: Laws Concerning Teaching Hygiene, The Journal A. M. A., Dec. 23, 1905, p. 1945.

Editorial: Public Instruction in Sexual Hygiene, The Journal A. M. A., March 10, 1906, p. 729.

Department of Foreign News: Teaching of Hygiene and Temperance in British Elementary Schools, The Journal A. M. A., Dec. 15, 1906, p. 2021.

Kenwood, R. H.: Hygiene as a School Subject for Elementary Schools, *Lancet,* London, Oct. 12, 1907.

Jackson, E.: Teaching regarding Sex in the Public Schools, *Denver Med. Times,* May, 1908.

EFFECT OF REMOVAL OF FAUCIAL TONSILS ON VOICE AND REPRODUCTIVE POWERS

To the Editor:—What effect would the removal of the faucial tonsils from a child have on the voice and the procreative powers?

F. J. Freshley, M.D., Plainville, Ind.

Answer.—The opinion of laryngologists and of recent authors, so far as they treat of the matter at all, may be summed up in the following, quoted from Ingals' "Diseases of the Chest, Throat and Nasal Cavities": "It will improve the voice if it alters it in any way. There is no reason for believing that the tonsils have any influence whatever on the generative organs, though the statement of Chassaignac indicates his belief that hypertrophy of the tonsil tends to arrest the growth of these parts, and that removal of the tonsils favors their development."

HISTORICAL ACCOUNT OF BACTERIOLOGY

To the Editor:—Please give me references to some historical facts on bacteriology.

C. B. Fulkerson, Kalamazoo, Mich.

Answer.—Almost any standard book on bacteriology will give the historical facts desired. A brief historical account of the subject may be found in W. H. Parks' "Bacteriologic Organisms" (1905), or in A. C. Abbott's "Principles of Bacteriology" (1909), both published by Lea and Febiger, 925 Sansom St., Philadelphia.

The Public Service

Medical Department of the Army

Changes for the week ended, Jan. 1, 1910:

Smith, Herbert M., granted 3 months' leave of absence.

Talbot, E. M., capt., left Fort D. A. Russell, Wyo., on 30 days' leave of absence.

Weed, F. W., capt., left Fort Totten, N. Y., on 10 days' leave.

Goldthwaite, R. H., lieut., left Fort Niagara, N. Y., on 10 days' leave of absence.

Field, Peter C., left Fort Slocum, N. Y., on detached duty en route to Detroit.

Bloombergh, H. D., capt., detailed as a member of the board of medical officers appointed in Par. 21, S. O. 16, Jan. 16, 1906, War Dept., for the purpose of studying tropical diseases as they exist in the Philippine Islands, vice Capt. James M. Phalen, Medical Corps, relieved.

Boyer, Perry L.; Woodhall, Wm. P.; Macy, Frederick S., capts., and McCord, Donald P.; Delacroix, A. C.; Bierbower, H. C., 1st lieuts., M. R. C., relieved from duty in the Philippines Division, and to sail on transport leaving Manila, P. I., about April 15, 1910, and on arrival in San Francisco, to report by telegragh to the Adjutant General of the Army, for further orders.

Schmitter, Ferdinand, capt., ordered to Fort Slocum, N. Y., instead of Fort Logan, Colo., for duty at expiration of his present leave of absence.

Gray, William W., col.; Clayton, Jere B., major; Collins, C. C.; Smart, Wm. M., and Connor, C. H., capts.; Warringer, B. B., and Thorne, James I, 1st lieuts., M. R. C., relieved from duty in the Philippines Division, and to sail on transport leaving Manila about May 15, 1910, and on arrival at San Francisco, to report by telegraph to The Adjutant General of the Army, for further orders.

Smith, Allen M., major, granted 7 days' leave of absence.

The following named officers of the Medical Corps and Medical Reserve Corps are relieved from duty at the stations designated after their respective names, and will proceed to San Francisco, and take transport to sail from that place on or about March 5, 1910, for the Philippine Islands, and on arrival at Manila will report to commanding general, Philippines Division, for assignment to duty: Foster, Charles L., capt., Army General Hospital, Presidio of San Francisco, Cal.; Morris, Samuel J., capt., Fort Washington, Md.; Coburn, Henry C., Jr., 1st lieut., Fort Slocum, N. Y.; Snow, Corydon G., 1st lieut., Fort Leavenworth, Kan.; McDiarmid, Norman L., 1st lieut., Jefferson Barracks, Mo.; Kershner, Warren E., 1st lieut., M. R. C., Fort Hancock, N. J.; Griffin, John C., 1st lieut., M. R. C., Fort Howard, Md.; Heterick, Robert H., 1st lieut., M. R. C., Fort Oglethorpe, Ga.; Browne, Roderic W., 1st lieut., M. R. C., Fort Monroe, Va.

Purviance, Wm. E.; Chamberlain, W. P., and Truby, Albert E., majors, appointed members of board to meet at Manila, P. I., for the examination of such officers of the Medical Corps as may be ordered before it to determine their fitness for promotion.

Medical Corps of the Navy

Changes for the week ended Jan. 1, 1910:

Taylor, J. S., surgeon, detached from the *New York* and ordered to the *Mississippi.*

Robnett, A. H., P. A. surgeon, detached from the Naval Hospital, Boston, and ordered to the Naval Training Station, Narragansett Bay, R. I.

Public Health and Marine-Hospital Service.

List of changes for the week ended Dec. 29, 1909:

Trask, J. W., asst. surgeon-general, granted 3½ days' leave of absence, from December 28, 1909.

Austin, H. W., surgeon, detailed as a member of a Revenue-Cutter Service Retiring Board, to meet at the Barge Office, New York, N. Y., December 27, 1909.

Carter, H. R., surgeon, granted 2 months' leave of absence from December 5, 1909, on account of sickness.

Fricks, L. D., passed asst. surgeon, leave of absence for 3 months from September 24, 1909, amended to read 2 months and 18 days.

Fox, Carroll, passed asst. surgeon, granted 6 days' leave of absence from December 6, 1909, under paragraph 191, Service Regulations.

McClintic, T. B., passed asst. surgeon, granted 5 days' leave of absence from December 27, 1909, under paragraph 191, Service Regulations.

Francis, Edward, passed asst. surgeon, leave of absence for 6 days from December 6, 1909, revoked.

Collins, G. L., passed asst. surgeon, detailed as a member of a Revenue-Cutter Service Retiring Board to meet at the Barge Office, New York, December 27, 1909.

Spratt, R. D., passed asst. surgeon, granted 7 days' leave of absence from December 30, 1909.

Wollenberg, R. A. C., asst. surgeon, leave of absence for 2 months from October 6, 1909, amended to read 20 days.

Warner, H. J., asst. surgeon, granted 7 days' leave of absence from December 23, 1909.

Wood, C. E., asst. surgeon, granted 3 days' leave of absence from December 21, 1909, on account of sickness.

Leake, James P., asst. surgeon, relieved from duty at Chicago and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Kolb, L., asst. surgeon, granted 3 days' leave of absence from December 24, 1909, under paragraph 191, Service Regulations.

Branham, H. M., acting asst. surgeon, leave of absence for 8 days from December 15, 1909, without pay, revoked.

Fox, M. C., acting asst. surgeon, granted 15 days' leave of absence from January 3, 1910.

Gill, S. G., acting asst. surgeon, granted 3 days' leave of absence from December 24, 1909, under paragraph 210, Service Regulations.

Walsh, W. H., acting asst. surgeon, granted 4 days' leave of absence from December 23, 1909, under paragraph 210, Service Regulations.

Watkins, McD., acting asst. surgeon, granted 2 days' leave of absence from December 25, 1909.

BOARD CONVENED

Board of medical officers convened to meet at the Marine Hospital at Baltimore, December 22, 1909, for the purpose of reexamining an alien. Detail for the board: Surgeon W. P. McIntosh, chairman; Passed Asst. Surgeon M. K. Gwyn; Passed Asst. Surgeon J. W. Schereschewsky, recorder.

Health Reports

The following have been reported to the Public Health Service, during the week ended Dec. 31, 1909:

SMALLPOX—UNITED STATES

Alabama: Mobile, Dec. 4-11, 1 case; Montgomery, 10 cases.
Florida: Jacksonville, Dec. 4-11, 1 case.
Indiana: Muncie, Dec. 4-11, 2 cases; South Bend, 1 case.
Kentucky: Lexington, Dec. 7-14, 2 cases.
Tennessee: Knoxville, Dec. 11-18, 1 case; Nashville, Nov. 13-20, 2 cases.
Wisconsin: La Crosse, Dec. 4-11, 5 cases; Milwaukee, 1 case; Superior, 2 cases.

SMALLPOX—INSULAR

Philippine Islands: Manila, Oct. 30-Nov. 6, 1 case.

SMALLPOX—FOREIGN

Canada: Halifax, Dec. 4-11, 1 case.
France: Paris, Nov. 27-Dec. 4, 4 cases.
Great Britain: London, Nov. 20-27, 4 cases.
Italy: Naples, Nov. 27-Dec. 5, 6 cases, 2 deaths.
Mexico: Aguascalientes, Dec. 4-11, 2 deaths; Mexico City, Nov. 6-13, 1 death; Monterey, Dec. 5-12, 1 death.
Newfoundland: St. Johns, Dec. 4-11, 3 cases.
Portugal: Lisbon, Nov. 27-Dec. 4, 3 cases.
Russia: Libau, Nov. 21-Dec. 5, 4 cases, 1 death; Moscow, Nov. 13-20, 4 cases, 2 deaths; Riga, Nov. 20-Dec. 4, 22 cases; Warsaw, Sept. 25-Oct. 23, 39 deaths.
Spain: Barcelona, Nov. 20-Dec. 6, 2 deaths; Madrid, Nov. 1-30, 96 deaths; Seville, 1 death.
Turkey: Constantinople, Nov. 21-28, 1 death; Smyrna, Oct. 15-Nov. 4, 59 deaths; Valencia, Nov. 15-Dec. 4, 2 cases.

YELLOW FEVER

Ecuador: Guayaquil, Nov. 13-27, 12 deaths.
Venezuela: Caracas, Nov. 22-25, 2 cases.
Philippine Islands: Manila, Oct. 30-Nov. 6, 11 cases, 10 deaths; Provinces, 160 cases, 121 deaths.

CHOLERA

India: Rangoon, Nov. 6-13, 10 deaths.
Java: Batavia, Nov. 6-13, 218 cases, 26 deaths.
Russia, general, Nov. 14-20, 85 cases, 39 deaths; St. Petersburg, 31 cases, 5 deaths.
Sumatra: Palembang, Nov. 6, present.

PLAGUE

Ecuador: Guayaquil, Nov. 13-27, 39 deaths.
India, general, Nov. 6-13, 5,002 cases, 3,901 deaths; Rangoon, 1 death.
Japan: Kobe, to Nov. 30, 244 cases.

Association News

NEW MEMBERS

List of new members of the American Medical Association for the month of December, 1909.

ALABAMA

Hogan, E. P., Birmingham.
Pearson, C. F., Montgomery.
Scott, E. M., Avondale.
Sellers, H. G., Birmingham.
Westmoreland, H. D., Huntsville.

CALIFORNIA

Barry, Ernest, San Francisco.
Bricca, C. R., San Francisco.
Christian, J. T., Lodi.
Fleischner, E. C., San Francisco.
Holland, J. H., Riverside.
Ledyard, C. C., Pasadena.
Hunter, Leo, San Francisco.
Magnus, M. E., San Francisco.
Putnam, V. E., San Francisco.
Shields, J. W., San Francisco.
Sweet, Earl, Los Angeles.
Thorne, I. W., San Francisco.
Tiffany, E. N., Coalinga.
Wright, A. H., San Francisco.

COLORADO

Doane, Bert L., Del Norte.

CONNECTICUT

Bartlett, W. B., Hartford.
Godfrey, W. T., Stamford.

FLORIDA

Pillans, P. P., Orlando.

GEORGIA

Lyle, W. C., Augusta.
McArthur, T. J., Cordele.

ILLINOIS

Chapman, F. P., Oak Park.
Conroy, C. L., Chicago.
Davenport, G. L., Chicago.
Deane, F. H., Hindsboro.
Edmonson, O. B., Clinton.
Gordon, J. M., Chicago.
Hayward, Martha, Aurora.
Inwall, C. W., Chicago.
Kalliontzis, C. P., Chicago.
Kraus, H. A., Chicago.
McGann, M. E., Joliet.
Mellinger, H. V., Chicago.
Meyer, Rudolph, Chicago.
Meyerovitz, Max, Chicago.
Mosser, Robert, Chicago.
Potter, W. E., Oak Park.
Riggs, J. P., Media.
Rogers, H. H., Canton.
Rosenblatt, Sol, Chicago.
Rosenzweig, Louis, Chicago.
Stephen, H. E., Joliet.
Webster, G. O., Murrayville.

INDIANA

Inks, C. A., Nappanee.
Jennings, W. L., Bridgeport.

IOWA

Hovenden, J. H., Laurens.
Parrish, W. O., Osceola.
Reppert, Lyell, Muscatine.
Reinecke, E. L., Dubuque.
Ward, E. C., Mt. Auburn.

KANSAS

Coe, W. B., Tonganoxie.
Dobson, S. J., Edna.
Lloyd, C. D., Leavenworth.
Rea, J. G., Wellington.
Wood, A. J., Fulton.

KENTUCKY

Higbee, B. D., Clinton.
Jett, N. A., Brooksville.
Lawson, N. E., Red Ash.
McClellan, Mary C., Lexington.
Nickell, G. C., Morehead.

MARYLAND

Browne, J. N., Baltimore.
Hodgson, H. M., Lonaconing.
Hutchins, E. H., Baltimore.
Lassman, G. A., Baltimore.

MASSACHUSETTS

Denning, F. J., S. Boston.

MICHIGAN

Campbell, W. A., Muskegon.
Cramer, J. T., Muskegon.
Goodnow, L. L., Michigamme.
Jackson, J. B., Kalamazoo.
King, W. T., Allouez.
McEwan, J. W., Detroit.
Roberson, G. G., Utica.
Wickware, M. M., Cass City.
Wilson, P. S., Negaunee.

MINNESOTA

Arneson, Thomas, Balaton.
Kean, N. D., Coleraine.
Magnusson, G. A., Aitken.
Morris, Minor, Hopkins.
Tilton, A. J., Harris.

MISSOURI

Fischer, J. G. W., Alma.
Harris, C. G., Festus.
Rehfeldt, C. S., St. Louis.
Russler, J. J., St. Louis.
Scheele, M. H., St. Louis.
Schoor, Edward, Garden City.
Scott, J. N., Kansas City.
Summers, J. S., Jefferson City.
Wenger, O. C., St. Louis.

NEBRASKA

Morse, R. H., Wisner.
Swartzlander, L. C., Omaha.

NEVADA

Schwartz, C. E., Luckyboy.

NEW MEXICO

McCormick, W. W., San Pedro.

NEW JERSEY

Hasking, A. P., Jersey City.
Jaflin, A. E., Jersey City.
Miner, Donald, Jersey City.

NEW YORK

Blanchard, R. B., Jamestown.
Gilmore, A. W., Auburn.
Gould, D. N., Sherburne.
Haberman, J. V., New York City.
Hays, H. M., New York City.
Hirsh, C. E., Brooklyn.
Lobenstine, R. W., New York City.
Schoenberg, M. J., New York City.
Van Winkle, L. P., Amityville.
Richardson, C. H., New York City.

NORTH CAROLINA

Kirby, G. S., Marion.
Linville, W. C., Winston-Salem.

NORTH DAKOTA

Husser, A. A., Berthold.

OHIO

Coleman, J. A., Toledo
Heyl, A. B., Cincinnati.
Jones, A. L., Lima.
Manley, O. T., Cleveland.
Miller, T. C., Massillon.
Murphy, E. D., Antwerp.
Steer, C. L., Lima.
Syler, A. H., Sugar Creek.
Watkins, F. L., Columbus.

OKLAHOMA

Hughes, J. E., Shawnee.

OREGON

Macrum, C. A., Portland.

PENNSYLVANIA

Boyer, G. H., Pottsville.
Campbell, W. B., Jackson.
Chalfant, H. B., Huntingdon.
Dengler, R. H., Philadelphia.
Hinchcliffe, J. H., Philadelphia.
Kunkel, O. F., Klinesville.
Lubken, W. O., Johnstown.
Mitchell, L. T., Aspinwall.
Molyneux, S. D., Nanticoke.
Muller, W. K., Philadelphia.
Myers, N. R., Wanamie.
Putts, B. S., Mont Alto.

SOUTH CAROLINA

Bell, F. A., Sampit.
Bowen, W. C., Belton.
Coggeshall, J. T., Darlington.
Davis, J. W., Clinton.
Haynie, W. R., Belton.
Hughey, J. B., Greenwood.
Johnson, F. B., Charleston.
Pepper, W. H., Anderson.
Smith, D. H., Florence.
White, W. G., Yorkville.

SOUTH DAKOTA

Church, E. O., Revillo.

TENNESSEE

Baird, W. O., Henderson.
Swanay, O. M., Treadway.

UTAH

Clark, F. G., Ogden.
Morrell, J. R., Ogden.
Smith, E. H., Ogden.

VIRGINIA

Ardan, N. I., Keokee.
Driver, W. F., New Market.

WASHINGTON

Campbell, F. M., LaCrosse.
Jacobson, L. H., Seattle.
Johanson, N. A., Seattle.
Rich, E. A., Tacoma.
Rosenkranz, O. H. G., *Farmington.*

WEST VIRGINIA

Leon, M., Mannington.

WISCONSIN

Chaney, Eugene, Wauwatosa.
Halsey, H. A., Milwaukee.
Johnston, G. B., Abbotsford.
McGovern, P. H., Milwaukee.
Malone, E. W., Waukesha.
McCarthy, T. H., Madison.
Newell, F. F., Burlington.
Parkhill, F. G., Delavan.
Rice, F. A., Delavan.
Rittenhouse, W., Lake Geneva.
Weld, W. H., Ft. Atkinson.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, January 25.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, Held at Omaha, Neb., Dec. 20-21, 1909

The President, Dr. Arthur L. Wright, Carroll, Iowa, in the Chair

The officers elected were given in The Journal, Jan. 1, 1910, p. 60.

Gastrointestinal Surgery

Dr. T. C. Witherspoon, Butte, Mont.: In this paper I call attention to an occurrence which I believe throws some light on the question of paralytic conditions observed in the stomach and bowels, and report the following case as an illustration. A man previously healthy, except for gastric symptoms, wiry and active, suffered from gastric ulcer of a chronic type. The ulcer was not situated in the pylorus, but to the left, and there was no obstruction to outflow from the stomach, nor was there dilation. Eight days after the gastroenterostomy the stomach became acutely dilated until its lower curvature reached the pelvic cavity. A second operation, done because of the dilation, nine days after the first, proved the duodenum was normal; the bowels were flat, the gastrojejunal opening still patulous, and no point of obstruction could be discovered beyond the stomach. Neither was there evidence of inflammation of the stomach or intestinal wall or peritoneum. A gastrostomy was performed and the fluid in the stomach had to be removed by pumping it out, as the stomach was completely paralyzed. The original incision in the epigastric area was not healed after eight days. It opened without instrumentation immediately on snipping the stitches at the second operation. On the ninth day this man suffered considerable pain in the stomach area and behind to the left. Following the gastrostomy the pain ceased. The epigastric incision through which both operations were done was closed at the second operation by through-and-through silkworm gut stitches, and healed without the slightest inflammatory reaction. The conclusions to which I came after observing this case were: 1. The acute dilation was the direct result of a paralysis of the stomach wall. 2. The lack of healing in the epigastric incision following a careful closure at the time of the first operation, and not associated with an evidence of infection, must be attributed to a trophic disturbance. 3. The stomach and epigastric abdominal wall are both innervated by the same spinal segment. It is a matter of logical deduction that the central apparatus was responsible for disturbance in both stomach and wound. 4. Some toxic agent only could have become so rapidly operative after eight full days of a normal condition following the operation, and this agent must have produced its effects by acting on the ganglionic nerve cells in the spinal segment. 5. This toxic agent most probably took its origin from an abnormal fermentation within the bowel and altered protective action of the mucous membrane of the bowel or of the liver failed to render harmless some product absorbed from the bowel lumen. In the last two and a half years I have had forty-six patients with general peritonitis following perforation of the appendix and of stomach ulcer recover. In these cases a continuous proctoclysis was practiced in only two. The method of administering the water was that of intermittent injections into the rectum, averaging from 60 to 80 ounces in twenty-four hours. When the patients' condition allowed removal of the appendix or closure of the ulcer and the establishment of pelvic drainage, they recovered. During this period I have had five deaths when simple drain of the pelvis was all that was done due to the extreme condition of the patient. All agree as to the value of introducing water by rectum and keeping the stomach empty, but I think that too much stress has been laid on the value of continuous proctoclysis, using physiologic salt solution. The Fowler position, with pelvic drain, seems to be the life-saving factor in general peritonitis.

DISCUSSION

Dr. Leonard Freeman, Denver, Col.: Dr. Witherspoon has called attention to dilatation of the stomach which takes place without apparently mechanical cause, and he attributes to some of these cases the action of bacteria on the nervous system. That may be true, but I doubt the absence of mechanical cause in addition to the action of the bacteria on the nervous system. We know that there are certain individuals who have stomachs that are difficult to empty, and that difficulty in emptying the stomach is due perhaps to a sagging of the intestines, large and small, particularly the large intestine, in pulling down on the stomach and to a certain extent influencing the pylorus. Such cases occur once in a while and account for many difficulties in the emptying of the stomach. I think that if we were to trace these cases of dilatation of the stomach we would probably find in the stomach of those people who have had such dilatations some difficulty in the emptying of the stomach originally. Some time ago I operated in a very simple pelvic case, which was followed by dilatation of the stomach clear down to the pelvis, resulting in the death of the patient. The autopsy showed that there was no absolute obstruction to the pylorus. There was no obstruction of the intestines themselves, and yet a fresh adhesion took place at the site of the pelvic operation to the omentum, which pulled on the large intestine, and that in turn pulled on the gastrocolic omentum to such an extent as to shut off the pylorus. This was demonstrated at the autopsy and accounted for the fact that the stomach had dilated to a certain extent. I think a combination of these things, namely, a stomach which does not empty itself very readily, combined with a toxemia and possibly with some pelvic affection, will serve to explain these cases better than to adopt the theory that the trouble is entirely nervous.

Dr. Clifford U. Collins, Peoria, Ill.: I am interested in the reference which was made to the separation of the abdominal incision. Madelung some years ago reported a number of cases in which separation of the abdominal incision had occurred and came to the conclusion that the kind of suture material used for closure of the wound had nothing to do with the separation. Dr. Emil Ries a few months ago reported three cases in which separation of the incision had occurred. The separation began at the peritoneal layer, and there was a gradual separation until the skin was reached, the skin being the last process in the separation. In the first case Dr. Witherspoon mentioned, did the peritoneal and muscular layers show any granulating process to indicate that separation had occurred some days before? The second case was rather unique in the fact that separation occurred first in the skin and then the muscle layer. In most of the cases reported the separation occurred in the peritoneal and muscular layers.

Dr. Charles H. Mayo, Rochester, Minn.: I understood Dr. Witherspoon to recommend gastrostomy for the treatment of acute dilatation of the stomach. In the cases reported the stomach was greatly distended and flaccid and so paralyzed that it would not empty through the incision made into it, and the contents had to be pumped out. A great many more cases of dilatation of the stomach occur than is generally believed, and I would recommend the more frequent use of the stomach tube. In most cases the stomach tube is applied in the postoperative treatment of surgical cases when vomiting occurs or sick stomach exists. When these patients are not doing well it will be found many times that there is so much paralysis that there is no effort on the part of the stomach to empty itself, and yet it will be found to contain half a pail full of fluid, the pressure of which on the abdominal wall has a great deal to do in producing anemia of the area of the blood supply which promotes healing, so that if we have an internal pressure beneath the suture line, limiting the capacity of the abdomen, we will have slow healing, and when we want to reoperate, if we cut the sutures, the wound readily opens, and it quickly heals after distention is relieved. Often the distention can be relieved by resorting to the stomach tube without a secondary operation, and I think a little more stress should be laid on that point.

Dr. I. B. Perkins, Denver, Colo.: It is usual to have considerable nausea following anesthesia, and for several years I have made it a practice to put the patient in the high Fowler position, and I find that in that position patients have much less nausea, and can take water freely, and that it passes readily into the intestines, I also find that there is much less dilatation of the stomach in these cases than I formerly had. I had occasion to experiment a little on myself in this line. I took an anesthetic to determine whether or not it was the psychic effect or whether it was due to my theory of drainage. At any rate, I had no nausea after I was put in the Fowler position.

Dr. Charles H. Wallace, St. Joseph, Mo.: I think we all agree that the failure of union of abdominal incisions, or incisions anywhere, is due to sepsis, no matter whether the sepsis be preoperative or postoperative. Another condition which I have encountered two or three times in the failure of union of the abdominal wall, and which I think is a factor in these cases, is the condition of the blood of the patient before operation. I recall two cases in which there was pronounced anemia, although operation was imperative, and there was failure of union of the incision, evidently due to the general anemias that existed. Of course, we witness this failure of union in other constitutional dyscrasias, such as chronic nephritis, and when we are compelled to operate on such patients the wounds may fail to unite on account of the constitutional condition present.

Abdominal Contusions with Special Reference to Indications for Early Operation

Dr. L. W. Littig, Iowa City, reported four cases of contusion of the abdomen with a view to giving the indcations for early operation. After discussing the symptoms and diagnosis he said that if there be a contusion of the abdomen and if the muscles are rigid, one should operate. Patients may be seemingly well for a number of hours or even days, and injury to the mesentery may result in gangrene of the intestine and death. Given a case of abdominal contusion, followed by board-like rigidity of the abdominal muscles, which does not quickly disappear, a laparotomy should be performed immediately. This symptom may be absent during shock in the absence of pain, but its absence under these conditions must not be regarded as a favorable symptom. There may be some cases in which necessity for immediate operation is not clear. In such cases he would not give opium. There will be other cases which do not seem severe, and in which an operation does not seem to be indicated. In these cases also he would not give opium.

DISCUSSION

Dr. Charles W. Oviatt, Oshkosh, Wis.: A case recently came under my observation of a man who was struck in the right iliac region with a board from a circular saw. In this case rigidity was marked from the start, but other symptoms did not develop for forty-eight hours. The patient refused operation, and died. Autopsy revealed that the cecum was torn loose from its attachment, with a hole in the bowel. No symptoms which would seem to call for immediate operation presented themselves for at least thirty-six hours, and yet this case emphasizes the importance of operating early when rigidity is marked.

Foreign Body in the Intestine

Dr. Charles W. Oviatt, Oshkosh, Wis., reported the following interesting and unique case:

A Swede, male, aged 53, was admitted to St. Mary's Hospital, Feb. 22, 1908. It was impossible to obtain anything like a clear history of the patient's previous condition, and no account was given of the swallowing of the foreign body. He complained of pain low down in the right side and on physical examination a circumscribed area of resistance could easily be made out with pain on pressure at this point. The pulse and temperature were normal. The diagnosis of appendicitis was perhaps too quickly made, but inability to get a clear history of the case is the excuse. On opening the abdomen through the outer border of the right rectus, a pointed foreign substance could be felt in the cecum. Through a very short incision into this viscus, a lead pencil, seven and a half inches in length, was removed. The appendix was small, presented no evidence of disease and was not removed. On the day following the operation the patient was shown the pencil and asked if he could account for its presence inside of him. He then remembered that about ten weeks before, while engaged in a game of cards in a saloon, acting in the capacity of score-keeper, he had the pencil in his mouth and during a fit of laughter swallowed it. He stated that for a day or two following the accident he had some pain in his stomach, but after that had experienced no trouble and had forgotten the incident entirely.

Secondary (Posterior) Gastrojejunostomy for Gastric Ulcer

Dr. J. F. Percy, Galesburg, Ill., reported a case in which, following an anterior gastroenterostomy performed eight years previously, he removed the jejunum from the stomach wall and closed up the openings, including the ulcer, and then did a posterior gastrojejunostomy with the short loop. He does not believe that hyperacidity accounts for all phases of the causes of these ulcers, but gives the chief rôle to chronic cholecystitis. His paper will appear in full in The Journal later.

DISCUSSION

Dr. L. L. McArthur, Chicago: I am inclined to agree with Dr. Percy as to the influence which an abnormal flow of bile may have in the maintenance of ulcerative conditions in the stomach, and the maintenance of hyperacidity. The bile is naturally the antidote of the acid secretions, and irritation about the gall-bladder will not infrequently influence the condition of the stomach secretions. The theory advanced by Dr. Percy might be further elucidated by laboratory experiments, and I would like to suggest that he have them carried out.

Dr. Charles H. Mayo, Rochester, Minn.: This paper brings to my mind that, ten years ago, when there were comparatively few gastroenterostomies done, we heard more about ulcers of the jejunum in proportion than we do to-day. Out of a good many gastroenterostomies we find that condition very rare in our own experience. Our experience, however, corresponds to what Dr. Percy has reported, namely, after anterior gastroenterostomy the ulcer has been at the site of the gastroenterostomy instead of being lower down in the bowel.

Dr. Percy: I have just completed some laboratory work by which I shall try to prove some of the things that are merely visionary now.

(To be continued)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

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Treatment of Advanced Extrauterine Pregnancy

Dr. Reuben Peterson, Ann Arbor, Mich., drew the following conclusions:

1. Wherever conditions permit, operation for the removal of the gestation sac is indicated in the first half of an extrauterine pregnancy, since at this period the mother is in great danger from rupture and sepsis, and the chances for the survival of the fetus are very poor. 2. During the latter part of an extrauterine gestation the chances of rupture and a fatal hemorrhage are much less (4.8 per cent.) and the chances of the survival of the fetus are much greater. 3. While malnutrition and malformation of the extrauterine child are more common than with the fetus under normal conditions, they are not frequent enough to contraindicate attempts at saving its life; hence, under favorable surroundings, when the patient can be watched, she should be allowed to go within two or three weeks of term before operation. 4. Since the maternal mortality is more than twice as great after operations in advanced extrauterine pregnancy when the placenta is left behind, its removal should be one of the cardinal principles of each operation. 5. In the discoid variety of placenta, in which only a small surface of this organ is not attached, the blood supply must be controlled either by tying the vessels, or by compression of the aorta before an attempt be made to remove the placenta. 6. When, for any reason, removal of the placenta is impossible, the sac should be stitched and the placenta shut off from the peritoneal cavity by gauze. 7. Dependent drainage through the vagina should be secured whenever possible.

Advantages of Neglect in Appendicitis Operations

Dr. Robert T. Morris, New York City: We have conscientiously tried to do too much in appendicitis operations and have damaged our patients unnecessarily. According to the principles of the pathologic era in surgery, we felt bound to remove all the products of infection in a most thorough way. We made elaborate arrangements for drainage, and we took the greatest care to avoid infection of the normal peritoneum. All these things which we did with so much care and caution were commendable until we learned step by step over to the principles of the fourth or physiologic era in surgery, allowing the patient to do most of the work of managing infections himself. The function of the surgeon to-day is merely to turn the tide of battle, and to place the patient in such condition that he can call out his own resources and fight the battle better than the surgeon could do it for him.

The application of most of our resources damaged the patient in such a way that he was prevented from calling out his own good resources. If we neglect to protect the peritoneum by putting in a mass of gauze while at work, it gives the patient an advantage, because the fear of pus infecting the normal peritoneum is now known to be a fanciful fear. If we neglect to make very long incisions or multiple incisions, it gives the patient an advantage, because he avoids the shock incident to large incisions, and he loses the menace of subsequent hernia. If we neglect to wash or wipe the field of operation thoroughly the patient has the advantage of avoiding the shock, and of the prolonged period of anesthesia required for such detailed work. If we neglect to cleanse and beautify the surroundings of a postoperative fistula, the patient has the advantage of rapid closure of such a fistula through the rapid contraction of connective tissue which is not meddled with.

DISCUSSION

Dr. Joseph Price, Philadelphia: I want to condemn unqualifiedly stump operations of every character, because we are too far advanced to leave one-sixth or one-eighth of the appendix when operating for appendicitis. A clean removal of the appendix is a simple procedure.

Dr. W. P. Carr, Washington, D. C.: Dr. Morris is right in one respect, namely, that in the bad cases of appendicitis we must fit the operation to the condition of the patient. I have seen many patients recover after a simple opening has been made, and pus let out, nothing further being done except perhaps to put a catgut ligature around the appendix and remove it, if possible to do so at the time. Such patients would not have stood a prolonged operation.

Dr. J. M. T. Finney, Baltimore: I wish to take exception to the word "neglect" in the title of Dr. Morris' paper, and venture to suggest in its place the word "observance," meaning by that, observance of certain fundamental principles of surgery. If there is anything that has been accepted as settled to-day, it is that unnecessary handling of the tissues, or unnecessary trauma inflicted on the intestinal organs, especially, is a surgical sin; also the unnecessary application of certain irritating antiseptic solutions to the peritoneal surface is also a surgical sin. In reference to the management of the stump of the appendix, I want to be considered as one of those who ligate the stump; I have always done so, and from an experience of a thousand or more cases of appendicitis, in which this has been done, I do not recall a single instance in which the slightest degree of trouble could be referred to the stump. It seems to me that we are blaming a system for the faulty application of it.

Unusual Type of Bladder Tumor

Dr. Robert C. Bryan, Richmond, Va.: I here report briefly a cavernous angioma of the bladder. By suprapubic cystostomy the tumor was located with difficulty, owing to the collapsed condition of the bladder. With serrated scissors it was carefully dissected out of the mucosa, the base was thoroughly seared with the Paquelin cautery, the free edges of the mucous membrane were stitched together with catgut, the bladder sewed to the abdominal wall, and drainage established. There was little hemorrhage. The patient reacted well, and made a good recovery.

Surgery of the Knee-Joint

Dr. J. Garland Sherrill, Louisville: Of the major traumatisms, fracture of the patella is of chief importance. This may be a very simple injury, if, for instance, the fracture is incomplete and the fragments are not separated. On the other hand, a compound fracture of this bone becomes a most serious accident. The result, after the so-called expectant treatment of fracture of this bone, may be sufficiently good to insure fair functional use of the limb. The results of the open operative treatment, however, are so much better that in healthy young patients and under proper surroundings the open method is strongly to be advised. My plan of treatment in fracture of the patella consists in a semilunar incision across the front of the joint at or just below the site of the fracture. Any clots of blood present are removed and all bleeding vessels controlled. The lacerated tendon of the quadriceps muscle is then sutured on each side and over the patella with a chromic catgut. The fascia and skin are then closed with catgut without drainage. After the wound is dressed the limb is placed in plaster of Paris. Passive motion is advisable in the third week and the patient can walk before the end of the fourth week. The fractures of the femur and tibia are always the accompaniment of very severe violence and ought to be treated according to the general principles for use in such injuries. Dislocation of the semilunar cartilage proves very troublesome to the patient and frequently causes great pain as well as fixation of the joint. The internal cartilage is affected more frequently than the external and the dislocation may be partial as a folding of the cartilage on itself, or the entire cartilage may be separated. The causative factor is in most cases a sudden torsion of the tibia, although a blow driving the tibia backward in moderate flexion might produce it. The diagnosis is to be made by the sudden fixation of a previously healthy joint accompanied by a sharp pain with subsequent restoration of function, and later a recurrence of the symptoms. Effusion into the joint may follow the injury and in some cases the cartilage may be felt in front of the joint near the margin of the tibia. Pressure over its former attachment will elicit pain and soreness. The latter is a valuable point in the diagnosis of this condition from loose (extraneous) bodies in the joints. Treatment is either palliative or operative.

DISCUSSION

Dr. A. R. Shands, Washington, D. C.: I have no more hesitation in opening the knee-joint than I would in opening the abdomen, and I have been doing it right along in cases of obstinate synovitis. In many cases of recurrent synovitis the joint has never been emptied of synovial fluid. The accumulative synovial fluid forms a mass similar to that in the bottom of an old vinegar barrel, and that is what causes recurrence of the trouble.

Dr. W. O. Roberts, Louisville: I have long since given up the use of metal appliances for holding fragments together. I resort to the open method in the treatment in cases in which we have the advantages of a suitable infirmary. I have seen but two cases of dislocation of the patella.

Dr. Horace J. Whitacre, Cincinnati: I wish to report two cases of loose semilunar cartilage, one in a boy, 10 years of age, in which the cartilage was organized and was removed; the other in a patient in whom the cartilage seemed to be in fairly good shape, and was sutured in place. The boy has remained in good condition except that he has had some pain from time to time when he exerted himself, but he has had no further displacement.

Dr. John C. Wysor, Clifton Forge, Va.: I recall one case in which I found fifteen floating bodies in the knee-joint ranging in size from the size of the end of my little finger to more than an inch in diameter. Operation was followed by a good result.

Myositis Ossificans Traumatica

Dr. J. M. T. Finney, Baltimore: The pathologic condition which forms the basis of this paper is one, the existence of which has been recognized for a long time, but only within a comparatively few years has it attracted any general attention. Including the seven cases reported in the paper, over 150 cases now have been so far recorded. There is always danger of mistaking this disease for sarcoma. Three of my patients came to me with a provisional diagnosis of sarcoma of the femur. There still exists a considerable difference of opinion as to the manner in which these bony deposits take place, and the source from which they come. A number of distinct conditions have been grouped under the general head of "myositis ossificans;" these all represent different pathologic processes.

The factor most concerned in the production of this trouble is unquestionably a single severe trauma, as, for instance, a kick by a horse. Nearly one-half of all the cases observed in the front of the thigh, involving the quadriceps extensor muscle. This and the flexor muscles of the arm seem to be the most common sights. The symptomatology is, as a rule, characteristic. Following a severe trauma there may be noticed the usual clinical phenomena, namely, localized swelling, tenderness, ecchymosis and disturbance of function. The ultimate prognosis is good. So far as the individual operation is concerned, it depends largely on the stage in which it is performed. There is always tendency to recurrence in those patients operated on early during the period of activity of the osteoid tissue. In later cases the condition does not tend to recur, that is, cases in which growth of bone has ceased. The pathology of the condition has given rise to a great deal of discussion, and it is yet not definitely determined. As prophylactic measures, aspiration and pressure are of somewhat doubtful efficacy, although highly recommended. Early incision with the evacuation of effused blood, the thorough removal of small fragments and spiculæ of bone, with drainage of the affected area may, in some instances, prevent the formation of the trouble. Massage in the early stages is contraindicated, as it may affect unfavorably the development of the trouble by stimulating the production of bone. The indications for operation are the presence of the tumor, the disturbance of function, pain, etc.

Cholecystenterostomy in Certain Cases of Pancreatitis

Dr. Le Grand Guerry, Columbia, S. C., made a plea for the more general use of this operation in this disease. He reported a case which is typical of a number to serve as a concrete illustration.

Mr. M., aged 38, married, several years ago had an attack of pain in the gall-bladder region with slight jaundice, pain occasionally radiating under the right shoulder, slight fever, indigestion, etc. These attacks occurred at infrequent intervals, but there was gradual weakening and loss of flesh. There was no sugar in the urine. A diagnosis of gall-stones or pancreatitis or both was made, and at the operation a slightly distended gall-bladder, with no stones, was found. The bladder was full of the characteristic ropy, tarry, black bile with a well-marked colon bacilli odor to it. The head of the pancreas was markedly enlarged. Operation consisted in cholecystotomy after the common duct had been thoroughly explored and a probe passed into the duodenum to insure the patency of the choledochus. Drainage was continued three months, during which time the patient gained twenty pounds in weight and was completely restored to health. Later, he had another attack, at which time cholecystenterostomy was done with the result that he has been permanently relieved from all of his symptoms and is now in perfect health.

Pancreatic Hemorrhage and Acute Pancreatitis

Dr. Joseph Ransohoff, Cincinnati: I here report three cases, two of the former, and one of the latter. They were all of the ultra-acute type. In two of the cases the hemorrhage into the free peritoneal cavity was very extensive, so that one might have thought of the rupture of one of the large vascular viscera or of a large mesenteric vein. In the third case the fluid was only tinged with blood. In two of the cases in which the hemorrhage was very severe, no fat necrosis was seen at the time of operation. In the third a fat necrosis led to the diagnosis during the operation. In one of the acute cases with severe hemorrhage, the patient recovered after laparotomy with drainage and gauze packing. In one of the fatal cases, fat necrosis was not seen at the time of the operation nor after autopsy was made. In none of the cases was a diagnosis made. In one it was thought of on account of the slight jaundice which was present. While, as in phlegmonous conditions elsewhere, it would seem necessary that the lesion of the pancreas should be attacked in every case from an academic viewpoint, it is not practicable in all cases. The condition of the patient is often so desperate, that a prolonged search for the lesion would be fatal, while drainage and gauze packing properly placed would give the patient a chance for recovery. Statistics show the value of attacking the pancreas in a formal way as part of the operative interference as compared with drainage alone. Statistics, however, can have little value in determining the procedure to be adopted when one considers the great variation which exists in the symptoms at the time an operation is performed. Each case must be considered on its own merits and the operator must know to what extent operative interference beyond drainage and walling off the focus of the disease with tampons the patient will tolerate. No fixed and fast rules should be laid down. In regard to chronic pancreatitis, I object to the off-hand way in which a diagnosis is often made at an operation by the sense of touch alone and regardless of the existence of the well-known clinical evidence of chronic pancreatic disease.

(To be continued)

Marriages

Robert Abercrombie Smith, M.D., to Miss Emily Wilk, both of Chicago, January 1.

Victor Maurice Gore, M.D., to Miss Hazel Wilkinson, both of Kingfisher, Okla., December 22.

Bradford Allen Camfield, M.D., to Miss Augusta Esther Butts, both of Chicago, December 23.

Albert Lee Yocom, Jr., M.D., to Miss Jennie Marie Curtis, both of Chariton, Iowa, December 25.

Eleanor Jane Taylor, M.D., York, Pa., and Rev. Edwin E. Calverly, of Philadelphia, September 6.

Marshall W. Weir, M.D., to Miss Jessie May Watson, both of Oklahoma City, Okla., December 23.

Sylvester Wesley Thorne, M.D., to Miss Helen Mary Denny, both of Memphis, Tenn., December 23.

Deaths

Samuel Benedict St. John, M.D. College of Physicians and Surgeons, New York City, 1870; a member of the American Medical Association; secretary of the Connecticut State Medical Society from 1883 to 1888; secretary of the American Ophthalmological Society from 1888 to 1908, and president in 1909; a member of the American Otological Society and American Academy of Ophthalmology and Oto-laryngology; president of the New England Ophthalmology Society in 1890-1891; a fellow of the New York Academy of Medicine; consulting ophthalmic and aural surgeon to St. Francis Hospital, Hartford, and Litchfield County Hospital; visiting ophthalmic and aural surgeon to the Hartford Hospital; a director of the Hartford Public Library; lecturer on ophthalmology in Yale University, New Haven, from 1881 to 1905; died suddenly at his home in Hartford, December 21, from angina pectoris, aged 64.

Reginald W. Garstang, M.D. Medical College of Indiana, Indianapolis, 1896; a member of the Indiana State Medical Association; formerly a member of the Association of Military Surgeons of the United States, and International Association of Railway Surgeons; surgeon to the Big Four System, Indianapolis; captain and assistant surgeon of the One Hundred and Fifty-ninth Indiana Volunteer Infantry during the Spanish-American War; for several years surgeon of Battery "A," Ind. N. G.; at one time police surgeon of Indianapolis; died at the Sanitarium of Dr. Albert E. Sterne in Indianapolis, December 21, from hemorrhagic meningitis due to an injury to the head received three weeks before while cranking an automobile, aged 35.

William Kelly Newton, M.D. College of Physicians and Surgeons, New York City, 1877; a member of the American Medical Association, American Public Health Association and New York Academy of Medicine; formerly coroner and health officer of New York City; first president of the Washington (D. C.) Pure Food Society; organizer of the board of health and first health officer of Paterson, N. J.; a trustee of the Free Public Library; a member of the staff of the Paterson General Hospital; and consulting physician to the Paterson Eye and Ear Infirmary; president of the New Jersey Sanitary Association; died at his home in Paterson, December 20, from peritonitis, aged 59.

Sarah Read Adamson Dolley, M.D. Randolph Eclectic Medical College, Rochester, N. Y., 1851; a member of the American Medical Association; professor of obstetrics in the Woman's Medical College of Pennsylvania in 1872 and 1873; president of the Provident Dispensary, Rochester, for several years; the second woman to receive a medical degree from an

American college; a member of the Monroe County (N. Y.) Medical Society, and delegate from that society to the American Medical Association at the Newport meeting; president of the Woman's Medical Society of New York State; died at her home in Rochester, December 27, aged 80.

John J. Archinard, M.D. Tulane University, New Orleans, 1893; professor of clinical microscopy in his alma mater; vice-president of the Louisiana State Medical Society; at one time president of the Orleans Parish Medical Society; medical inspector in Central America for the Louisiana State Board of Health; and later bacteriologist of the board; assistant in the Charity Hospital; surgeon of the Fourth Battalion, La. N. G.; and later major of the Second Louisiana Infantry U. S. V., and brigade surgeon with service in Cuba during the Spanish-American War; died at his home in New Orleans, December 27, from cerebral hemorrhage, aged 38.

George Mitchell, M.D. Medical College of Ohio, Cincinnati, 1862; a member of the Ohio State Medical Association; formerly professor of therapeutics and materia medica in the University of Wooster, Cleveland; censor of the Cleveland College of Physicians and Surgeons; a member of the board of trustees of the Ohio Wesleyan University, Delaware; a trustee of the Columbus State Hospital; president of the pension board of Mansfield, Ohio; assistant surgeon of the One Hundred and Second Ohio Volunteer Infantry during the Civil War; died at his home in Mansfield, December 17, from pneumonia, aged 72.

Evermont Ward Witten, M.D. Missouri Medical College, St. Louis, 1891; a member of the Oklahoma State Medical Association; professor of materia medica and therapeutics and clinical medicine in Oklahoma Medical College; a member of the medical staff of Bethany and St. Anthony's hospitals, Oklahoma City; physician of Oklahoma county; city physician for eight years; and a member of the local pension examining board; died at his home in Oklahoma City, December 17, from cerebral hemorrhage, aged 52.

John Benjamin Ruffell, M.D. Hahnemann Medical College, Philadelphia, 1898; Medico-Chirurgical College of Philadelphia, 1900; a member of the Medical Society of the State of Pennsylvania; for ten years assistant to Dr. L. Webster Fox; visiting physician to the eye department of the Medico-Chirurgical Hospital; died at his home in Philadelphia, December 22, from pneumonia, aged 33.

Edward F. Taylor, M.D. University of Pennsylvania, Philadelphia, 1853; one of the oldest members of the Monmouth County (N. J.) Medical Society; and for many years visiting surgeon to the Monmouth Memorial Hospital, Long Branch; surgeon of volunteers throughout the Civil War; died at his home in Middletown, N. J., December 11, from senile debility, aged 79.

Edward L. Perrault, M.D. University of California, San Francisco, 1885; a member of the American Medical Association; at one time a member of the board of supervisors of San Francisco; formerly chief surgeon of the Oregon Short Line Hospital, Boise, Idaho; died at Lane Hospital, San Francisco, December 15, from pneumonia, aged 48.

Wilson Lee South, M.D. Louisville, 185—; a surgeon in the Confederate Service during the Civil War; and afterward a practitioner in Texas; twice a member of the territorial legislature of New Mexico and county judge; formerly mayor of Trinidad, Colo.; died at the home of his daughter in Denver, November 29, from senile debility, aged 80.

Frank Eugene Risley, M.D. New York Homeopathic Medical College, New York City, 1889; for 15 years physician in charge of the Brooklyn Nursery and Infant Hospital; a member of the visiting staff of the Cumberland Street and Prospect Heights hospitals; died at his home in Brooklyn, December 10, from heart disease, aged 55.

William Henry St. Clair (years of practice, Ill., 1877); a member of the American Medical Association; said to have been the oldest practitioner of Effingham county, Ill., where he had practiced for forty-two years; died at his home in Effingham, November 19, from heart disease, aged 81.

Henry Orne Stone, M.D. Harvard Medical School, Boston, 1841; said to have been the oldest alumnus of that institution; one of the founders of the Framingham Public Library; a prominent abolitionist; died at his home in South Framingham, December 13, from paralysis, aged 91.

William H. Wheeler, a Confederate veteran; for two terms collector of internal revenue; twice a representative from Forsyth county in the legislature; for four years mayor of Winston-Salem, N. C.; died at his home in that city, April 23, from tuberculosis, aged 70.

Jacob Schneider, M.D. Cleveland University of Medicine and Surgery, 1871; formerly of Cleveland, Ohio; for thirty years house physician to the German Methodist Orphan Home, Berea, Ohio; died at his home in Daytona, Fla., December 11, from pneumonia, aged 64.

Guy Melville Dunning, M.D. University of Michigan, Ann Arbor, 1904; a member of the American Medical Association; and a specialist in diseases of the eye, ear, nose and throat; died at his home in Lansing, Mich., December 24, from pneumonia, aged 40.

Thomas M. Curran, M.D. University of Pennsylvania, Philadelphia, 1882; a veteran of the Civil War; for more than 50 years a practitioner of York county, Pa.; died at his home in Cross Roads (R. F. D., Felton), December 19, from cerebral hemorrhage.

John J. Weeks (license, Ohio, years of practice, 1896); at one time editor of the *Medina* (Ohio) *Gazette*; and provost marshal during the Civil War; died at his home in Cleveland, December 9, from asphyxiation by natural gas, aged 81.

Edwin P. B. Wilder, M.D. Chicago Medical College, 1874; district surgeon for the hospital fund of the Union Pacific Railroad; coroner and health officer of Wallace county, Kan.; died at his home in Sharon Springs, December 9, aged 55.

Elizabeth Genevieve Monville, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1909; assistant demonstrator in anatomy in her alma mater; died in the Woman's Hospital, Philadelphia, December 4, from nephritis, aged 33.

William I. Stark, M.D. Pulte Medical College, Cincinnati, 1881; of Terre Haute, Ind.; was instantly killed in a collision between a passenger train of the Vandalia System and a street car in Terre Haute, December 15, aged 52.

Irvin Negus Frasse, M.D. University of Pennsylvania, Philadelphia, 1890; formerly of Soquel, Cal.; a member of the American Medical Association; died at his home in Monterey, Cal., December 17, from heart disease, aged 44.

Henry Holcombe Malone, M.D. New York University, New York City, 1860; a member of the Medical Association of the State of Alabama; a Confederate veteran; died at his home in that city, December 19, aged 72.

Robert Mark Wilson, M.D. Kansas Medical College, Topeka, 1899; of Nortonville, Kan.; a member of the American Medical Association; died in Topeka, Aug. 12, 1908, from cerebral hemorrhage, aged 38.

John W. Steffin, M.D. College of Physicians and Surgeons, Chicago, 1894; physician of Cheboygan county, Mich.; and health officer of Cheboygan; died at his home in Cheboygan, December 3, aged 52.

William H. Kynett, M.D. College of Physicians and Surgeons, Chicago, 1885; a veteran of the Civil War; died at his home near Bartow, Fla., November 13, from chronic bronchitis, aged 67.

Frank P. Dundore, M.D. Jefferson Medical College, Philadelphia, 1870; a member of the Medical Society of the State of Pennsylvania; died at his home in West Leesport, December 15, aged 61.

Richard Henry Duff, M.D. Western Reserve University, Cleveland, Ohio, 1884; a member of the American Medical Association; died at his home in Girard, Pa., December 15, aged 53.

Almon Brooks, M.D. University of Virginia, Charlottesville, 1865; a prominent specialist in internal medicine; died at his home in Chicago, December 25, from valvular heart disease, aged 68.

Oscar C. Webb, M.D. Maryland Medical College, Baltimore, 1904; a member of the Medical Association of Georgia; died at his home near Gray, June 21, from tuberculosis, aged 33.

Samuel Wheeler Shaw (years of practice, Ill., 1901); for 47 years a practitioner of Chicago; died at his home in that city, December 20, from arteriosclerosis, aged 86.

William Bowman Chalfant, M.D. Western Reserve University, Cleveland, Ohio, 1869; died at his home in Pennsville, Pa., December 19, from arteriosclerosis, aged 74.

Ruth Barstow, M.D. John A. Creighton Medical College, Omaha, Neb., 1909; died at her home in Council Bluffs, September 1, from valvular heart disease, aged 23.

John M. Yancey, M.D. Reform Medical College, Macon, Ga., 1856; died at his home in Russellville, Ark., December 13, from pneumonia, aged 77.

Wilson H. Van Dusen, M.D. Miami Medical College, Cincinnati, 1869; died at his home in Lancaster, Wis., December 2, aged 63.

Book Notices

ROTUNDA PRACTICAL MIDWIFERY. By E. Hastings Tweedy, M.D., F.R.C.P.I., Master of the Rotunda Hospital, and G. T. Wrench, M.D., Late Assistant Master. Cloth. Pp. 464, with illustrations. Price, $6. New York: Oxford University Press.

When the American Medical Association and the Association of American Colleges are working to perfect a time schedule of required studies and the American Gynecological Society is studying the teaching of obstetrics in American medical colleges, it is interesting to learn that the master of Rotunda Hospital says that "the requirements of practical midwifery are so inadequately provided for in the curriculum of our universities and licensing corporations that it is not an exaggeration to say that many recently qualified practitioners are a danger rather than a help to their lying-in patients." The book is written as a concise guide in the elucidation of the difficulties of obstetrics and aims to present the practical aspect of the subject.

Only about one-sixth of the book is devoted to normal pregnancy, labor and puerperium, but the diagnosis and management of pregnancy and the conduct of labor are discussed with great clearness. It is interesting to note that the authors do not hesitate to mention proprietary medicines and manufacturers' names with a freedom that would hardly seem proper to an American author. Telephones do not seem to be in common use, for the nurse is directed to "write a letter to you before breakfast to tell you that labor has started." It is consoling to learn that "in the hospital 50 per cent. of our primiparæ got torn perineums to a greater or less extent, and have to be stitched." It is rather surprising, however, to hear that in case of "retention of the membranes in the uterus without hemorrhage the patient is given a dram of ergot and the membranes allowed to come away in the lochia, which they usually do without trouble in a few days."

In Part 2, under the abnormalities of pregnancy, we turn with special interest to the subject of accidental hemorrhage. The well-known "Rotunda" treatment is described carefully and illustrated. The illustration of the method of infusion into the breast shows the injection actually into the breast, a practice which we hope is not in reality common. The treatment of eclampsia is eliminative and non-operative unless the cervix is dilated so that extraction is possible.

The chapters on dystocia are clear and satisfactory. The diagnosis and treatment of abnormal presentation is especially thorough and practical. In the discussion of forceps it is singular that the awkward lateral position of the patient is still retained. It is true that the author says "If the pull begins to prove hard get the patient on to her back." It is also hard to understand why so important an operation is done on the bed and why the genitals are not shaved.

The discussion of puerperal infection is very satisfactory, especial attention being given to the question of natural and acquired immunity. The management of the breast is not treated very fully. In general the puerperium is somewhat slighted. The chapters on the baby, however, are unusually thorough.

The authors have succeeded in their efforts to present the subject in a brief practical way and in simple language, and from the standpoint of the practitioner who has largely to rely on his own resources.

EXERCISE IN EDUCATION AND MEDICINE. By R. Tait McKenzie, B.A., M.D., Professor of Ph [illegible] and Director of the Department, University of [illegible] Pp. 406, with 346 illustrations. Price.$3.5 [illegible] W. B. Saunders Co., 1909.

Dr. McKenzie has succeeded admirably in his effort to present the subject of physical education in an effective way to three hitherto widely separated groups of people, school teachers, teachers of physical training, and physicians. The recent rapid growth of an appreciation of the place and value in an educational system of physical training and as an important adjuvant in preventive and curative medicine makes this book particularly timely and opens for it a wide field of usefulness.

The subject-matter is well arranged, and the various topics are treated in a very readable way, which is popular and untechnical without sacrificing accuracy. The amount of space devoted to each subject is necessarily small in a book that covers so wide a range as this. The illustrations are numerous and bear close and helpful relation to the text. The pictures are well chosen, instructive and artistic.

The author has brought together in the first part of the book considerable historical material relating to the beginnings and governing principles of the various systems of physical training. The discussion of the German, Swedish, Japanese jiu-jitsu, and Delsarte systems is critical and direct. On page 128 the statement that "in a game of football the time occupied in actual play is only four or five minutes" is open to criticism, as under the new rules it is not uncommon for a team using series plays to continue in action for three or four minutes without interruption, so that the total time spent in actual play is many times larger than here stated.

The classification of athletic games, exercises on gymnastic apparatus, etc., from the point of view of the physiologic effects, parts of the body brought into play, and most suitable age, is very suggestive; but one wonders why basket-ball, which makes a heavier demand on speed, endurance, and attention than almost any other form of team competition, should be classed with work with gymnastic apparatus instead of with other athletic games. The chapters on the physical education of the blind and the deaf-mute and of the mentally and morally defective are excellent in presenting a detailed statement of the latest methods that are being successfully used in this difficult field, and in giving reports of the markedly beneficial effects of physical training in these groups. The section on exercise in medicine will prove to be of interest to the medical practitioner, to whom it will be of real value in suggesting supplements to the purely medical treatment of the conditions there discussed. There is a very real danger, however, in the attempted application of these principles and methods by physical directors who have had, at best, a very superficial training in medical subjects, to cases of circulatory disturbance, hernia, and extreme obesity. Such cases should not be treated by a non-medical man unless he has had a thorough training in medical gymnastics or unless he is working under the close supervision of a trained physician.

The book is worthy of careful study by both educators and physicians, and the sane, comprehensive treatment of the wide range of subjects that are included in physical education should be very helpful in stimulating the further extension of this work in both education and medicine.

MEDICAL SOCIOLOGY: A Series of Observations Touching on the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M.D., Surgeon to the German Hospital. Cloth. Pp. 355. Price, $2. New York: D. Appleton and Company, 1909.

"Medical Sociology" as a title of a work for the use of physicians seems stranger in this country than it would in Europe. German universities require of their medical students a certain knowledge of economics and sociology, and in order to supply the older practitioners with such knowledge special courses are provided in Berlin and other universities dealing with social evils and conditions and the most effective ways to combat them. The University of Vienna has recently taken the step of establishing a chair of social medicine. The author of this work gives in the preface his thesis: that as medicine is the science devoted to the study of health, so medicine has as its special aim the investigation of conditions which destroy health, the study of their causes, their prevention and their treatment. Dr. Warbasse has spoken frequently before medical societies on this subject and some of these addresses appear as chapters in his book. A number of chapters are devoted to the question of sexual hygiene, which is openly and freely discussed, as it ought to be in the interest of society at large. The stand taken in almost every instance is a broad-minded one, although some readers will feel that the author departs a little from it where he speaks of the influence of religious doctrines and superstitions. In opposition to many of his colleagues, he is in favor of a wide diffusion of medical knowledge among the public, his argument being that the man who knows most about his body and its functions will take the best care of it.

A good deal of space is devoted to the necessity of cooperation among physicians to secure their own best interests. This cooperation is not only possible in large cities, but has become very effective in smaller places. There physicians club together, each contributing some standard work, to make up an up-to-date medical library, placing the most expert knowledge within the reach of every member. This club serves, besides, as a common meeting-place for the discussion of interesting cases.

Einführung in die moderne Kinderheilkunde. Ein Lehrbuch für Studierende und Aerzte. Von Dr. B. Salge, Professor der Kinderheilkunde in Frieburg i. B. Cloth. Pp. 356, with 9 illustrations. Price, 9 marks. Berlin: Verlag von Julius Springer, 1909.

This book is intended, as the title implies, as an introduction to the study of pediatrics. The whole subject is covered, not exhaustively as in a text-book, but rather with full emphasis on those things which pertain especially to infancy and childhood, and passing quickly over such diseases as are practically identical in childhood and adult life. It is intended to meet the needs of the student who approaches the subject of pediatrics for the first time, after he is fairly familiar with internal medicine; and of the busy practitioner who wishes to keep abreast with the very latest advances without wading through original articles and monographs or more exhaustive text-books. This purpose it fulfils admirably.

Especial interest attaches to the chapters on infant-feeding and nutritional disorders in infancy. One hears much at the present time of Czerny and of Finkelstein. Salge's book, perhaps largely because it is the newest, combines for the first time in one volume, and that fortunately not a large one, all of this wealth of new ideas that seems destined to exert a determining influence on our ideas concerning these subjects. To those who wish to familiarize themselves with these ideas without wading through the original articles and books, this compact, clear-cut exposition will heartily commend itself.

A Practical Treatise on Diseases of the Skin. By James Nevins Hyde, A.M., M.D., Professor of Dermatology in Rush Medical College, Chicago. Eighth Edition. Cloth. Pp. 1100, with 223 engravings and 58 plates in colors and monochrome. Price, $5. Philadelphia: Lea & Febiger, 1909.

The author states in the preface that the untimely death of his associate, Dr. Frank H. Montgomery, delayed the appearance of this edition. The work has been carefully revised and new matter added, which has necessitated the addition of 250 pages. Considerable space is devoted to diseases of the tropics. Pellagra is classed as a "tropical disease of uncertain nature." The symptoms, etiology, diagnosis and treatment are summarized briefly, and a fairly complete bibliography is given. New articles have been added on the following subjects: prurigo nodularis, several of the special forms of erythema, the "fourth disease," paraffin prothesis, osteoma and calcification of the skin, meralgia paresthetica, acrodermatitis pustulosa hiemalis, lichen spinulosus, keratolysis exfoliativa congenita, lipoma, Fordyce's disease, causalgia, leucemia and pseudoleucemia cutis, tinea ciliorum and, in particular, diseases produced by animal parasites, especially the brown-tail moth dermatitis. The book therefore is brought well up to date and will continue to hold the high place it has heretofore held as a standard text-book on diseases of the skin.

A Text-Book of Special Pathology. By J. Martin Beattie, M.A., M.D., Professor of Pathology and Bacteriology, University of Sheffield, and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P., Lecturer on Pathologic Bacteriology in the University of Edinburgh. Cloth. Pp. 509, with illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1909.

In reviewing the text-book on general pathology by the same authors, we spoke of it as being almost an excellent book, but falling short of excellence by reason of its lack of thoroughness and the evident lack of high ideals in the author's conception of medical education. The volume of special pathology falls far short of the general pathology. It seems to be intended for the student who wishes his lessons in pathology in as compact a form as possible, without any troublesome whys and wherefores. It will certainly never stimulate a student to do much collateral reading or independent thinking. There is little fault to be found with the book on the score of accuracy, and the subjects are presented well, but the most modern views are not always given as much attention as they deserve in even so compact a treatise. Except for the illustrations the subjects are handled about as completely and well in good text-books on practice, where the pathologic physiology is usually discussed more effectively. The reproductions are excellent, although not so prominent a feature as in the general pathology, from which many of them are borrowed.

The Physician's Pocket Account Book. By J. J. Taylor, M.D. Flexible leather, 24 pages of practical instructions for physicians, 216 pages of accounts. Price, $1. Philadelphia: The Medical Council, 4105 Walnut Street.

This book is so arranged with page and column headings that one simple entry is intended to complete the bookkeeping as far as that particular entry is concerned, no posting to a ledger being necessary. The information is in such shape that it is easily understood by any one, no hieroglyphics being used to indicate the service, and is therefore said to stand the test of the courts when it is necessary to bring suit on an account. Each account is kept separately and a glance shows its exact status. Besides the 216 pages for accounts, the book contains an index, business suggestions, suggestions for the treatment of poisoning, table of infectious diseases, average fee bill, record of births, deaths and vaccinations and a cash account. Its use should simplify the bookkeeping of physicians and save them much time.

Bacteriology for Nurses. By Isabel McIsaac, Author of "Primary Nursing Technique," etc. Cloth. Pp. 176, with illustrations. Price, $1.25. New York: The Macmillan Co., 1909.

The average nurse, at least after graduation, requires only an elementary knowledge of bacteriology, and the author states in the preface that in this work for pupil nurses no attempt has been made to do more than endeavor to present a practical arrangement of the subject. A schedule is suggested for laboratory work compiled from several outlines in use in various schools. The phraseology is simple and the book is practical.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, January 11. Chairman, Dr. W. H. Sanders.
District of Columbia: Washington, January 10. Sec., Dr. George C. Ober, 210 B Street., S. E.
Illinois: Coliseum Annex, Chicago, January 19-21. Sec., Dr. J. A. Egan, Springfield.
Indiana: Room 120, State House, Indianapolis, January 11. Sec., Dr. W. T. Gott.
New Mexico: Santa Fe, January 10. Sec., Dr. J. A. Massie.
Oklahoma: Ione Hotel, Guthrie, January 11. Sec., Dr. Frank P. Davis, Enid.
South Dakota: Sioux Falls, January 12-13. Sec., Dr. F. W. Freyberg, Mitchell.
Vermont: Montpelier, January 11-13. Sec., Dr. W. Scott Nay, Underhill.
Wisconsin: Milwaukee, January 11. Sec., Dr. John M. Beffel, 3200 Clybourn Street.

Report of the Commissioner of Education for 1909

The last report of the United States Commissioner of Education, which has recently made its appearance, shows how deep is the interest now being taken in educational standards and how large is the number of boards, commissions, councils and associations which are at work in the development of such standards. This report will not only be a convenient reference book for information regarding the work which each agency is doing but it will help to bring about more cooperation between these agencies.

Those who are interested in higher standards of medical education, and who are dealing with only one department of education, have long since fully appreciated that all agencies should cooperate to bring about a carefully planned educational system wherein the work and limitations of each department, elementary, secondary, collegiate, professional and technical, are clearly outlined. It is of no less importance that the various state educational boards which have the legal power to create standards should work together for the development of a national standard rather than a large number of dissimilar or even conflicting standards. Toward these ends the annual reports of the Commissioner of Education are exerting a decided influence. The chapters relating to the educational progress in other countries also allow of valuable comparisons and will suggest similar improvements at home.

The statement is often heard that a thing is valued in proportion to the amount of money paid for it. Since the reports of the Commissioner of Education may be obtained free of cost we doubt whether they really receive the appreciation which is due them for the highly important and valuable information they contain.

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, Nov. 9-10, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 22, of whom 17 passed, 4 failed, and 1 withdrew. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1909)	79
Yale Medical School (1908) 82.5;	(1909)	75.2
Kansas Medical College	(1902)	77.7
Baltimore Medical College	(1909)	79.2
College of Physicians and Surgeons, Baltimore	(1909)	77.7
Maryland Medical College	(1908)	77.7
Johns Hopkins University	(1909)	82.6
Harvard Medical School (1899) 87.2;	(1904)	76.5
Cornell University Medical College (1903) 79.6;	(1909)	83.9
Columbia University, College of Phys. and Surg.	(1909)	80.2
New York University Medical College	(1884)	78.2
Long Island College Hospital	(1909)	83.3
Queen's University, Canada	(1909)	81
University of Naples, Italy	(1905)	75
FAILED		
Howard University	(1904)	71.2
Georgetown University	(1908)	73.3
Yale Medical School	(1909)	74
Jefferson Medical College	(1909)	74.5

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Reduced Incomes of Physicians

In the *Lancet-Clinic*, November 27, appears a letter in the correspondence department signed by "A Medicus, Jr.," which discusses the economic side of the practice of medicine. Commenting on a previous communication, Medicus admits the influence of recent financial depressions, increasing accessions to the ranks from medical colleges, the influence of present-day preventive medicine and public sanitation, etc., in decreasing the average income of physicians, but adds that three great evils are mainly responsible for present economic conditions: the abuse of medical charity, the development of contract practice and the lack of system on the part of individual physicians in keeping and collecting their accounts.

Discussing the average income of the physician, which he places at $600 per annum, or about $1.60 per day, he says, "Compare this with the average wage of the most ordinary laborer and then you may feel that comparisons are indeed odious at times. If you wish to know where the shoe pinches most, ask the physician's wife and his creditors. Ministers and school teachers' wives have been immortalized in prose and poetry for their ability to make both ends meet and for their heroic fortitude in facing genteel poverty. The physician's wife is fast joining them." He states that the names of 20,000 physicians appear on the dead-beat list of a national organization and that an officer of the organization states that the list should contain the names of at least 20,000 more. This, he says, is six times larger than the average number of dead-beats in other professions and occupations, "which," he says, "either speaks very ill of our morals or points to some very erroneous conceptions of our relations to the general public."

After discussing the abuse of medical charity and the work done along that line in Chicago and the development of the contract and lodge practice system in Germany, he takes up the third factor, namely, lack of system in keeping and collecting accounts, to which he attributes a large share of the economic loss which the profession is sustaining.

Legislative Notes

STATE LEGISLATURES IN SESSION

Although an off year in state legislative work, twelve legislatures have met or will meet during the winter. The Georgia legislature met in November; the Kentucky and Virginia legislatures convened in December, while the following legislatures will assemble in January: Maryland, Massachusetts, Mississippi, New Jersey, New York, Ohio, Rhode Island and South Carolina. The Louisiana legislature will meet in May.

LEGISLATION PROPOSED IN KENTUCKY

In Kentucky the work has already been outlined, the following bills relating to health matters having been prepared for presentation to the state legislature: State Board of Health appropriation, vital statistics, medical inspection for third and fourth class cities, abortion, and tuberculosis sanatorium bills. In an editorial in the *Kentucky Medical Journal*, December 15, it is stated that these bills are substantially the same as those passed by an almost unanimous vote of the legislature two years ago, but vetoed by Governor Wilson for various reasons. The bills have been modified so that it is hoped that they will be acceptable to the governor.

The State Board of Health appropriation bill provides for the appropriation of $30,000 a year for the state board to establish and equip a state laboratory, to employ a bacteriologist, to conduct an annual school for county and city health officers for instruction in the latest practical methods of preventing disease, to hold public health conventions in connection with farmers' and teachers' institutes, to investigate the water supply, to establish and maintain a board of vital statistics, to control diseases among domestic animals, and to pay the general expenses of the board. The vital statistics bill follows the line of the model bill endorsed by the American Medical Association.

The medical inspection bill provides for the medical examination of all persons teaching or proposing to teach and all pupils attending or proposing to attend any public or high schools in cities of the third and fourth class. It provides that teachers shall be examined semi-annually and pupils at the beginning of each term or oftener if requested by the teacher, by the superintendent of the school, or by the board of education. Any teacher found to have tuberculosis in any form or any other contagious disease shall not be permitted to teach. Any pupils found suffering from contagious or infectious diseases are not to be admitted until permitted by the medical inspector. City physicians or physicians employed by the board of education are to make the examinations.

The abortion bill has been prepared by Hon. Aaron Kohn and provides that it shall be unlawful for any person to prescribe or administer to any pregnant woman or to any woman whom he supposes to be pregnant, any drug, medicine or substance with the intent thereby to procure the miscarriage of such woman or to use any instrument or means whatever, unless such miscarriage be necessary to preserve her life, under penalty of a fine of from five hundred to one thousand dollars, and imprisonment for from one to five years. In case of miscarriage and the death of the child results the person responsible for the miscarriage shall be guilty of a felony and on conviction punished by from two to twenty-one years in the penitentiary. In case the death of the woman results the person offending shall on conviction be held guilty of murder or manslaughter. The consent of the woman shall be no defense and she shall be a competent witness in any prosecution under the act.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Third Weekly Meeting

DISEASES OF THE INTESTINES

CATARRHAL ENTERITIS: Etiology. *Primary* causes, improper food, toxic substances, nervous influences, changes in weather, changes in intestinal secretions. Secondary causes, infectious diseases, typhoid, tuberculosis, etc.

Inflammatory disturbances, peritonitis, etc. Circulatory disturbances, and cachexia of cancer, anemia, etc. Clinical forms, (a) acute, (b) chronic diarrhea; treatment of each.

CROUPOUS ENTERITIS: Etiology, (a) toxic, mercury, lead, etc.; (b) infections, pyemia, pneumonia; (c) terminal process in chronic nephritis, cirrhosis of liver, etc.

ULCERATIVE ENTERITIS: (a) Follicular ulcer; (b) stercoral ulcer; (c) simple ulcerative colitis, (d) cancerous ulcer, (e) ulceration from external perforation, (f) tubercular, syphilitic and typhoid ulcerations. Etiological diagnosis of intestinal ulceration.

DYSENTERY: (a) Amebic, (b) bacillary. Etiology and diagnosis of each.

APPENDICITIS: Differential diagnosis, from biliary lithiasis, renal lithiasis, tubo-ovarian disease, intestinal obstruction, intestinal colic, Dietl's crisis, acute hemorrhagic pancreatitis, hysteria.

INTESTINAL OBSTRUCTION: (a) Strangulation, (b) intussusception, (c) volvulus, (d) strictures and tumors, (e) abnormal contents. Diagnosis in each; location of obstruction.

ENTEROPTOSIS, SPLANCHNOPTOSIS: (a) Without symptoms, following repeated pregnancies, etc.; (b) with symptoms, associated with neurasthenia. Symptoms and physical signs.

Medicolegal

Validity of Law and Board of Health Order Prohibiting City Discharging Raw Sewage Into Stream

The Supreme Court of Montana says, in the case of Miles City vs. Board of Health of the State of Montana (102 Pac. R. 696), that, by an act of 1907, the state, in the valid exercise of its police power, has said that hereafter no polluting sewage and no human excrement shall be discharged into any stream which is the source of water supply for a city or town until such deleterious matter is rendered harmless by some means of sewage purification acceptable to the State Board of Health. Section 8 of this act authorizes the board to make, or cause to be made, a thorough investigation in a case of this character; and, if in the judgment of the board the public health so requires, the board may make such an order as one in question here prohibiting the city from extending a sewer, into a river, and directing that the city at as early a date as practicable dispose of its sewage in some sanitary manner acceptable to the board. This section does not contemplate a public trial, but rather an ex parte (one-sided) investigation, and the legislature, being the repository of the police power of the state, could designate the State Board of Health as its agent, and prescribe the manner in which such police power should be exercised. If the board informs itself by any means, the fact that testimony is not taken is altogether immaterial.

Moreover, the court holds that, notwithstanding the length of time the city has enjoyed the privilege of discharging its sewage into the river, the state may, in the interest of the public health and safety, regulate such use, or, if necessary, prevent the continuance of it. Indeed, if the state had consented to the use of the river by the city for the purpose of discharging its sewage therein, such consent would not have amounted to more than a license, which the state might revoke whenever public interests required it.

This statute does not deprive the city of any property right. It does not forbid the city using the river for the purpose of discharging its sewage, provided the sewage has been subjected to some practical means of purification. The statute looks only to a proper regulation of the use asserted, and not to a denial of the use; and the mere fact that the city was making use of the river for discharging raw sewage into it at the time this statute was enacted, which modifies such use, is not any valid objection to the statute.

Then, since the statute is couched in prohibitive terms, and, in addition thereto, provides that pending an appeal to the district court the order of the board shall continue in force, unless otherwise ordered by the board, the conclusion would seem irresistible that the city has the burden of showing that the order was not justified.

Liability for Malarial Fever of Maintainers of Breeding Places for Mosquitoes—Expert and Other Evidence

The Court of Appeals of Georgia holds, on the appeal of Towaliga Falls Power Co. vs. Sims (65 S. E. R., 844), a suit brought by the latter party, that public service corporations in the construction of dams and in the backing of water must choose their sites with due regard to the surroundings. They are not authorized to maintain stagnant ponds, polluted pools of water, or places in which mosquitoes breed, in unusual numbers, to the endangering of the health of surrounding communities.

There was testimony in this case from which the jury might have found that the plaintiff had a spell of malarial fever as a result of being bitten by anopheles mosquitoes, bred in unusual numbers in stagnant water caused by the power company's dam, but that the mosquitoes would have been incapable of communicating the disease if they had not previously bitten a person having malaria in his system. It is held that the court properly refused to charge the jury that under these circumstances the damages would be too remote to hold the company liable therefor.

Where the question is as to the cause of an attack of malarial fever suffered by the plaintiff, it is relevant for him to prove that the defendant erected a dam which caused the water to become stagnant and the mosquitoes to breed in unusual numbers; that previously there had been no malarial fever in the community; that the erection of the dam and the breeding of the unusual number of mosquitoes was followed by an epidemic of malaria; and that in the opinion of experts malaria is communicated by mosquitoes. The testimony is circumstantial, but of probative value.

Counsel ingeniously, and the court suspects, somewhat facetiously, argued in this case, the court says, that the mosquito is an animal ferae maturae (of a wild nature), and that in an action for damages done by a dangerous animal scienter (knowledge) on the part of the person harboring it is a necessary allegation. But, without making any specific classification of mosquitoes, the court holds that they are a common pest, and that the maintenance of a place where they breed in unusual numbers is such a menace to persons residing nearby as to make that place ordinarily a nuisance; and that if, as a result of the maintenance of such a place, the mosquitoes do in fact breed there, as they otherwise would not have bred, and become inoculated with malaria, and, in accordance with what is naturally to be expected, fly abroad and communicate malarial fevers, the proprietor of the breeding place is in legal contemplation proximately the author of the damage.

Testimony that prior to the creation of the pond there were but few mosquitoes and no cases of malarial fever in the community, that the pond had stagnant pools in it favorable to the breeding of mosquitoes, that, following its creation, the mosquitoes appeared in unusual numbers, and an epidemic of malarial fever broke out in the community, would, in connection with expert testimony that malaria is conveyed by mosquitoes, be relevant circumstantial evidence on the question as to whether the creation of the pond caused the epidemic of fever. The range of such testimony, like that in cases of experiments, is largely within the discretion of the trial judge.

Presumptively, any practicing physician is by virtue of his profession an expert on the methods by which diseases are communicated. In order to qualify one as an expert witness, it is not necessary that he or any one else should testify in so many words that he is an expert, but the fact that he is entitled to give expert testimony may be shown by a statement of his profession, occupation, education, and experience. The extent of the witness' knowledge or opportunities for accurate information on the subject may be shown either by the direct or the cross-examination. The weight to be given his testimony is for the jury. A practicing physician who has treated a case of malarial fever, and who is acquainted with surrounding conditions, is competent to express an opinion as an expert on the causes of the fever, although his general ideas on the question may be out of harmony with those entertained by his profession generally and by the majority of scientific men.

When one is in possession of premises as a tenant and another maintains a temporary nuisance, whereby the premises are rendered unhealthful, and the tenant and dependent members of his household are made sick, the tenant may recover, not only for the diminution caused to the value of his leasehold interest by the fact that the premises have become undesirable for habitation, but also for the direct damages caused him by the illness of himself and his family. His illness and that of the household is evidentiary on the question as to whether the premises have been rendered undesirable for habitation and therefore of less rental value, but the pain and suffering, physican's bills, loss of time, etc., directly resulting from the illness, are elements of damage apart from the loss sustained in the shrinkage of the value of the property and there may be a recovery of the damages from both sources when the pleadings and the evidence are such as to authorize it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

December 25

1 Preparation, Enthusiasm, and Self Sacrifice. J. MacFarland, Philadelphia.
2 A Personal Experience with the Method of Cesarean Section used in the Lying-In Hospital of New York. S. P. Warren, Portland, Me.
3 The State, the Municipality, and Tuberculosis. W. C. White, Pittsburg, Pa.
4 *Foreign Bodies Removed from the Ears. H. Foster, Kansas City, Mo.
5 The Infancy of the Practice of Medicine and Surgery. H. Pomeranz, New York.
6 Influenzal Meningitis. A. Hymanson, New York.
7 *Treatment of Tuberculosis by Succinimide of Mercury Injections. H. Freeman, New York.
8 Trachoma. L. J. Goldbach, Baltimore.

4. **Foreign Bodies Removed from the Ear.**—Foster reports eight cases to show the variety of foreign bodies which may find their way into the ears. The substances removed were: (1) Three live screw-worms; (2) a piece of a sharp-pointed slate pencil; (3) a bead; (4) a small stone; (5) a grain of wheat; (6) a grain of corn; (7) a small green electric light bug; (8) a bit of broken pencil.

7. **Mercury in Tuberculosis.**—In 8 cases of tuberculosis in which Freeman has used succinimid of mercury there has been improvement in the general condition, evidenced by increase in weight, normalizing of temperature and diminution of cough, expectoration, and night sweats. The destructive action of the mercury on the tubercle bacilli in two cases was strikingly apparent. Percussion and auscultation uniformly reflect the general improvement. Freeman believes that the inevitable conclusion to be drawn from such cases as those must be that, in succinimid of mercury, hypodermically administered, we have an efficient means of arresting tuberculous degeneration and of improving in a most striking manner the general condition of the patient. The only question which appears to remain for test is whether we may not have here a specific remedy for the disease in all stages at which the tissues are not yet so broken down and disorganized that reestablishment is a physical impossibility.

Medical Record, New York

December 25

9 Results Achieved by the Movement for Sanitary and Moral Prophylaxis—Outlook for the Future. P. A. Morrow, New York.
10 Freud's Conception of the Psychoneuroses. A. A. Brill, New York.
11 *Stenosis of the Larynx Cured by Intubation. E. Mayer, New York.
12 Study of the Eustachian Tube in Relation to the Radical Mastoid Operation. S. Oppenheimer, New York.
13 Studies with the Wassermann Reaction. E. C. White and S. D. W. Ludlum, Philadelphia.
14 Frequency of Hepatic Sclerosis in Non-Alcoholics. A. L. Benedict, Buffalo.

11. **Stenosis of the Larynx.**—The three cases of laryngeal stenosis reported by Mayer were all due to different causes. The first was due to a gunshot wound, comminuting the thyroid cartilage, the second was a post-thyroid perichondritis, and the third was a recurrent granuloma of the larynx. The cases are of special interest, first because of their unusual nature, and second, because of the satisfactory results following intubation.

Lancet-Clinic, Cincinnati

December 11

15 The Outlining of Normal Organs, and the Diagnosticating of Diseased Conditions of the Pleura and Lungs by Means of Palpation. F. M. Pottenger, Monrovia, Cal.
16 Case of Traumatic Neurosis Illustrating Successful Psychotherapy. T. A. Williams, Washington, D. C.
17 The Simplified Faucial Tonsil Operation. O. J. Stein, Chicago.

December 18

18 Surgery of the Gall-Bladder. W. D. Haines, Cincinnati.
19 The Latent Gall-Stone. C. N. Smith, Toledo, Ohio.
20 Latent Duodenal and Gastric Ulcer. W. J. Stone, Toledo, Ohio.

Northwestern Lancet, Minneapolis

December 1

21 *Empyema: Diagnosis and Treatment. W. T. Adams, Elgin, Minn.
22 A Plea for Medical Inspection of Schools. R. M. Wheeler, Hot Springs, S. D.
23 Tumors of the Bladder. E. S. Judd, Rochester, Minn.
24 *Enlargement of the Prostate. F. R. Wright, Minneapolis.
25 Cicatricial Strictures of the Esophagus. W. Lerche, St. Paul.

21. Abstracted in The Journal, Nov. 27, 1909, p. 1850.

24. **Enlargement of Prostate.**—The points of interest in Wright's case are the small size of the tumor (150 grains), which completely closed the outlet of the bladder while at the same time it offered no obstruction to the passage of the catheter, and the smooth, even hypertrophy of the bladder wall, which showed no trace of trabeculæ or saccules.

Kentucky Medical Journal, Bowling Green

December 1

26 *Mental Diagnosis. E. M. Wiley, Lexington.
27 *The First Interview with the Patient. J. L. Atkinson, Campbellsville.
28 *Treatment of Mutilated Extremities. R. C. McChord, Lebanon.
29 *Delirium Tremens. F. M. Stites, Hopkinsville.
30 *Chronic Diseases of the Faucial Tonsils. S. G. Dabney, Louisville.
31 *The Pupils During Health and Disease. A. O. Pfingst, Louisville.
32 *Diagnosis of Acute and Chronic Mastoiditis. J. A. Stucky, Lexington.
33 *Treatment of Acute Mastoid Disease. L. S. Givens, Cynthiana.
34 Treatment of Chronic Mastoid Disease. J. T. Reynolds, Mt. Sterling.
35 Radical Treatment of Chronic Mastoid Disease. W. N. Offutt, Lexington.

26, and 28 to 33. Abstracted in The Journal, Nov. 13, 1909, pp. 1680, 1681.

27. **First Interview with the Patient.**—Atkinson speaks of the practice of medicine as a calling. He discusses the mission of the doctor, the confidential relationship of the medical adviser to the patient, and the necessity for such relationship, and methods to be employed.

Medical Fortnightly, St. Louis

December 10

36 Washington's Leper and America's Leper Colony. F. J. Koch, Cincinnati.
37 Relation of the Physician and Surgeon. H. C. Crowell, Kansas City, Mo.
38 The Problem of Living. C. Pope, Louisville, Ky.

Surgery, Gynecology and Obstetrics, Chicago

December

39 *Anatomic Considerations in Peritoneal Adhesions. J. C. Clarke, Philadelphia.
40 Operative Treatment of Puerperal Thrombophlebitis. J. Brettauer, New York.
41 *Etiology of Cholecystitis. J. E. Else, Pullman, Wash.
42 *Relation of the Thyroid and Thyroidism to the Toxemia of Pregnancy. G. G. Ward, New York.
43 Difficulties of Gall-Bladder Surgery. J. N. Baker, Montgomery, Ala.
44 *A Method of Obtaining More Reliable Knowledge of the Exact Areas of Pain Complained of by Patients Afflicted with Visceral Disease. P. A. [illegible]
45 Case of Typhoid Spine. J [illegible] Canada.
46 *Cancer Mortality. J. A. [illegible]
47 Thrombi and Emboli—Postoperative Importance. H. Crouse, El Paso, Tex.
48 An Apparatus for Aspiration. J. H. Kenyon and E. H. Pool, New York.
49 Fracture of the Eminentia Capitata. H. Reineking, Milwaukee, Wis.
50 Pseudo-Hermaphroditismus Masculinus Externus. K. Das, Calcutta, India.

51 Protective Appendicitis and Fourth Era in Surgery. R. T. Morris, New York.
52 *The Use of Rubber Elastic Bands for Drainage. E. S. Ryerson, Toronto.
53 Two Intractable Cases of Vesicovaginal Fistula. E. S. Stevenson, Rondebosch, Cape Colony, South Africa.
54 The So-Called Murphy-Fowler After-Treatment of Appendicitis. G. S. Brown, Birmingham, Ala.
55 Toxemia of Pregnancy. H. Morell, Regina, Canada.
56 The Table-Side Sterilizer. J. D. Singley, Pittsburg, Pa.

39. **Peritoneal Adhesions.**—Omental adhesions associated with traction, according to Clarke, act directly on the transverse colon and the stomach, limiting the function of both and giving rise to chronic symptoms, frequently classified under the glittering generality of indigestion. Kinking of the pylorus, direct tugging on the superior mesenteric artery through bad fixation and consequent traction on the omentum, and adhesions about the jejunum are all causes for gastric disturbances following local and general peritonitis. Obstinate constipation without gastric disturbance suggests merely a distortion of the colon, whether in its transverse or sigmoidal sections. On the other hand, symptoms referable to the gastric area, such as eructations of gas and fluids, fulness after eating, with distress, should suggest the probability of the effects of the adhesions expending their force on the upper intestinal tract. For several years it has been the author's custom, at the completion of every abdominal operation, unless there was some lesion or operation on the colon contraindicating its hydraulic distention, to give by enema, while the patient is still under the anesthetic and in the Trendelenburg posture, from one and a half to two liters of salt solution. Through many observations he has found that not only is the entire colon partially filled, but that the fluid frequently backs out in a serpentine wave through the ileocecal valve into the ileum. In this way the transverse colon is naturally dropped back by the weight of the fluid into its normal situation, and the sigmoid flexure is untwisted and assumes its natural situation, if it happens to occupy, through the distortion of packs or operative manipulation, a bad position in the pelvis. The fluid, if the patient is still under the anesthetic, and if care is observed in placing her in bed, is almost invariably retained, acts as a splendid stimulant in overcoming shock, lessening the refrigerant effects of the anesthetic and the stress thrown on the kidneys. Not only is immediate postoperative tympanites of less frequent occurrence, but the ultimate convalescence and freedom from post-operative sequelæ incident to adhesions have been minimized. In other words, the transverse colon, when thus employed, is a most serviceable hot-water bag applied directly to the sympathetic system and great vessels. The fluid is rapidly absorbed, and not only gives the patient the stimulating value of the heat, but the even greater benefit of a large volume of fluid.

41. **Etiology of Cholecystitis.**—Else found by experimentation that motile organisms can and usually do reach the gall-bladder from the intestines by ascending the common and cystic ducts. Organisms rarely, if ever, reach the gall-bladder from the intestines by way of the portal vein. The tubercle bacillus and the ameba coli are probably exceptions to this. But these organisms produce an infection of the liver first, and an infection of the gall-bladder is secondary to the liver infection. These organisms extend deeply into the intestinal wall and probably enter the smallest branches of the portal vein directly. Infective organisms can reach the gall-bladder through another route, the exact course of which must be worked out.

42. **Thyroidism and Toxemia of Pregnancy.**—The study of the relation of thyroidism to the toxemia of pregnancy in the light of some of the recent researches as to the nature and treatment of Graves' disease is the basis of Ward's paper. He believes that the thyroid gland is in all probability concerned in promoting nitrogenous metabolism, because there is considerable evidence that it normally hypertrophies during pregnancy and plays an important part in the increased nitrogenous metabolic processes incident to that state. He regards it as very probable that the toxemia of pregnancy is largely dependent on faulty metabolism, at least an insufficient metabolism is an accompaniment which greatly adds to the seriousness of the condition. Failure of the thyroid to hypertrophy during pregnancy is probably followed by insufficient metabolism, and may result in the various forms of toxemia of pregnancy. Graves' disease, by materially altering the quantity and quality of the thyroid secretion, has an important influence on metabolic processes; therefore if associated with pregnancy, owing to the increased metabolism incident to that state, it becomes a grave complication. When there is failure of the normal hypertrophy of the gland during pregnancy, and when there is a diseased thyroid, as in exophthalmic goiter, the administration of thyroid substance, by supplying the deficiency of the normal thyroid secretion and by diuretic action, may materially improve a faulty metabolism, and thus have a favorable influence on the manifestations of the toxemia of pregnancy. The use of a saline extract of thyroid proteids made from fresh normal human glands is much more efficient in rapidity and reliability of action than the sheep thyroids as ordinarily prepared; therefore much more satisfactory results may be expected from its use. The hypodermic administration of thyroid proteids is greatly superior to oral administration, especially when used in cases of toxic vomiting of pregnancy, or in eclampsia.

44. **Area of Pain and Visceral Disease.**—With the hope of obtaining more accurate knowledge of the location of pain complained of by patients afflicted with disease of the abdominal and pelvic viscera. Harris has for some time required that nurses mark the skin in such a manner as to show all localities of pain. He employs characters to indicate pains, pain area centers and directions of radiation. The first of these characters consists of a continuous or unbroken line; the second of a broken line or a dash; the third of a dot; and the fourth of a dash and a dot. Beginning with the fifth localization of pain Arabic numerals are employed for the purpose of successive enumeration and identification of all centers of pain.

46. **Cancer Mortality.**—Mortality statistics reviewed by McGlinn show that, while there was a general decrease in mortality from all causes of 1.8 per 1,000 population during the period between 1890 and 1900, cancer not only did not decrease, but showed an actual increase of 12 per 100,000 population during this period. It is frequently stated that this increase is only apparent and not real, being due to more accurate diagnosis and better registration reports. However, a study of these figures shows that this increase is almost universal, and that the disease shows a proportionate increase in those parts of the body which are readily accessible and in which the diagnosis, on account of its ease, has always been fairly accurate. In the registration area of the United States in 1906 out of a total death rate for males at all ages of 358,286 there were 11,166 who died of cancer, and out of a total of 299,819 for females, 17,854 died of cancer. This showing that one male out of 32 will die of cancer, and one female out of 11.2 will die of cancer. The corresponding phthisis rates being for males one out of 9.9 and for females one out of 10.2. This shows that almost as many women die of cancer as of phthisis.

In the same area for 1906 out of a total death rate of 186,944 for males over 35 years of age, 10,644 died of cancer and out of a total of 156,465 for females over 35 years of age, 16,879 died of cancer. This means that one man in 17.5 over 35 years of age will die of cancer, and one woman in 9.2 over 35 years of age will die of cancer. The corresponding phthisis rates for this age period being for males 1 in 9.9 and for females 1 in 14.1. In other words, more women past the age of 35 die of cancer than of pulmonary tuberculosis. The stomach is the most frequent site of the disease in man, occurring in 43.06 per cent. of all cases. In women the stomach is second in point of frequency, occurring in 24.47 per cent. of cases, while the uterus is first, being the site in 27.68 per cent. of all cases.

Statistics show that more women die of cancer than men, but eliminating cancer of the organs peculiar to sex, actually more men than women die from this disease. The age of greatest frequency in reference to the site of cancer is shown as follows: Abdomen, males 60 to 64, females over 50; bladder, males 60 to 70, females 50 to 60; brain, equally over 20 for both males and females (the number of cases is so small that the statistics are valueless); breast, males equally over

40, females equally over 45; eye, males and females equally over 20 (number of cases very small); genitals, males 60 to 75, females 60 to 64; head, face, and neck, males and females equally over 75; kidney, males 45 to 49 and over 75, females 55 to 59; larynx, males 60 to 70, females very rare; liver, males 60 to 70, females 55 to 65; lower extremity, males and females equally after 40; lungs, males 50 to 54, females 50 to 65; mouth, tongue, and throat, males 55 to 59, females 65 to 69; ovaries, 45 to 60; penis, after 40; rectum, males after 55, females 55 to 59; stomach, males 55 to 69, females 60 to 64; testicle, after 20; upper extremity, males after 20, females after 40; uterus, 45 to 49.

52. **Elastic Rubber Bands for Drainage.**—Ryerson uses the ordinary elastic band for carrying out the principles of drainage. It was first applied in all cases in which drainage was required, with the exception of those cases in which a tube was still considered advisable. From the test cases it was learned that the discharge was taken up into the dressing, practically none of it being dammed back into the cavity as the result of drying around the mouth. The discharge was found to run up between the approximated surfaces of the two layers of rubber as well as between the outer surface of the band and the surrounding wall of the sinus. As the approximated surfaces of the bands were always moist with discharge and the cavity emptied of its contents it was considered that capillary action was the force which was responsible for the drainage of the wounds. Among the advantages of the bands that were noted, were the ease of introduction, the absence of pain, and the efficient way in which they carried out the drainage. The flexibility of the bands also allows the cavity to collapse and in this way hastens the healing process. On account of the flatness of the band and the small amount of granulation tissue that forms in a collapsed cavity, the resulting scar with its subsequent contraction will be small. The conditions in which Ryerson considers that rubber bands will carry out drainage satisfactorily are abscess cavities, acute and chronic sinuses, operation wounds of medium size in which bloody oozing is expected, e. g., thyroidectomy, or in which the wound is expected to become septic.

Vermont Medical Monthly, Burlington

November

57 Clinical Relationship of Ophthalmology to General Medicine and General Surgery. J. H. Woodward, New York.
58 Sleep—Sleeplessness and Hypnotics. S. W. Hammond, Rutland.
59 The Secondary Work of the Digestive Juices. C. F. Dalton, Burlington.
60 The Individual Assuming Personal Care. J. W. Watson, So. Braintree, Mass.

Journal of Ophthalmology and Oto-Laryngology, Chicago

November

61 *"Trachoma Bodies" possibly the Etiologic Factor of Trachoma. B. Pusey, Chicago.
62 Surgical Correction of Deformities of the Nasal Septum. E. Pynchon, Chicago.

61. Published in the *Bulletin of the Northwestern Medical School*, June, 1909. The important points of this article were covered in an article on this subject published in The Journal, July 3, 1909, p. 28.

Pennsylvania Medical Journal, Athens

November

63 *Present Status of Cancer Research. L. Loeb, Philadelphia.
64 *Differential Diagnosis of Gall-Stones, Ulcer and Cancer of the Stomach. C. Graham, Rochester, Minn.
65 *Prevalence of Cancer. S. G. Dixon, Philadelphia.
66 Early Diagnosis of Cancer of the Breast and Best Operative Technic. W. L. Rodman, Philadelphia.
67 *Cancer of the Mouth and Lip. E. Laplace, Philadelphia.
68 *Early Diagnosis and Best Treatment of Cancer of the Rectum. R. W. Stewart, Pittsburg.
69 *Early Diagnosis of Cancer of the Uterus; Operative Technic. T. S. Cullen, Baltimore.
70 Education of the Public Concerning Cancer of Uterus. J. G. Clark, Philadelphia.
71 Place of the *X*-Ray in the Treatment of Cancer. J. C. Price, Scranton.
72 *The *X*-Ray in Relation to Carcinoma of the Breast. W. S. Newcomet, Philadelphia.
73 Cerebrospinal Syphilis: Five Cases with Necropsy. S. D. Ingham, Philadelphia.
74 *Indications for Antisyphilitic Treatment of Tabes Dorsalis. J. H. W. Rhein, Philadelphia.
75 Advantage to Physician and Pharmacist in the Use of U. S. P. and N. F. Preparations. W. P. Kirk, Monessen.

63. **Present Status of Cancer Research.**—Loeb says that whether or not cancer is a parasitic disease can neither be affirmed nor absolutely denied at present, but he believes that, on the whole, the increase in knowledge in recent years has not tended in the direction of the parasitic hypothesis. Only systematic breeding experiments in animals, such as those carried out at present by Tyzzer, can definitely decide what part hereditary factors play in the pathogenesis of cancer. If no fact known so far necessitates the assumption of microorganisms as the cause of cancer, nevertheless their presence as intracellular parasites would explain the apparently endless proliferation of the cancerous cells. There can be no doubt that various non-specific physical or chemical stimuli are among the best established factors in the pathogenesis of cancer. Experiments prove how important the study of animal tumors has been and will be still more so in the future for the analysis of cell and tissue growth in general. At present, the principal weapon in the struggle against cancer still consists in thorough extirpation of the tumor. Certain experiences in tumor inoculation prove that the liability to the formation of local metastases may differ even in tumors of the same histologic structure. It will be necessary, therefore, to avoid carefully any contact between the tumor and the surrounding tissues during the operation. Inasmuch as mechanical injury to a tumor may lead, in certain cases, to an increased energy of growth, it seems to Loeb that whenever possible an exploratory incision ought to be followed at once by radical removal of the tumor. It will be necessary to use all means to secure an early diagnosis and an early operation.

64. **Differential Diagnosis of Gall-stones.**—Graham says that in gall-stones the general health does not suffer until complications are present. The course of ulcer is prolonged and fluctuating; in cancer it is short and steadily downward. Pain in gall-stones is irregular in time, of sudden onset, and of severe but short duration, abrupt cessation, radiates to right arch and back and is independent of food. In ulcer, pain is usually clear cut, in spells, regular in time, and eased by food to reappear in from two to four hours. In cancer, the pain is continuous, dull, depressing and not only is not controlled by food, etc., but is immediately increased by it. In gall-stones the vomiting is less a factor in diagnosis. In ulcer it is as regular as is pain. It is irregular in cancer. In gall-stones gas is troublesome only at the time of the colic. In ulcer it is a symptom at a time when other symptoms are present and is controlled in the same manner as the other symptoms are controlled. In cancer, gas is continuous and increased in amount, with periods of great increase usually soon following the ingestion of food. Blood is rare in gall-stones; in ulcer quite rare; in cancer common. In gall-stones the patient is normal physically, save when there are late complications with pancreatic disturbance. In ulcer, the patient is hopeful and active; in cancer, depressed, languid, weakened, discouraged, pale, and, perhaps, cachectic. Diagnosis of gall-stones is made with considerable satisfaction; that of peptic ulcer is, perhaps, less clearly defined. Diagnosis of cancer of the stomach is extremely difficult to make in that early stage when surgery, the only means of relief, offers a hope of cure, and when delay is fatal. Though late in his diagnosis, either because of insuperable circumstances, lack of knowledge or unpardonable neglect, the internist has met his responsibility, at least in a small measure, when he places his patient with gall-stones, ulcer, or suspected gastric cancer in the hands of a competent surgeon. The surgeon's responsibility, however, does not cease with exploration or gastroenterostomy alone, because careful resection is necessary in cancer or any suspicious ulcerous lesions.

65. **Prevalence of Cancer.**—Dixon says that so far as statistics are concerned, the term cancer may be considered as including "cancer" and other "malignant tumors," and excluding all tumors which are not definitely stated to be of a malignant nature. In the Bureau of Vital Statistics in the Pennsylvania State Department of Health, it is necessary to ask each month not less than twenty-five physicians throughout the state for a more definite statement, even as to the location of cancers and malignant growths. Material aid in the study of cancer is thus withheld.

67. **Cancer of Mouth and Lip.**—Laplace claims that cancer of the mouth and tongue is especially destructive to life because of the ease of infection from the lymphatics and the excessive virulence of the disease in that locality. A clinical differential diagnosis should be accompanied by laboratory tests for early diagnosis. The ocular or cutaneous tuberculin test may eliminate tuberculosis, the Wassermann reaction will eliminate syphilis, whereas the Crile blood test may finally determine the cancerous diathesis. A radical operation should then be performed. Removal of a specimen for microscopic examination is always risky for fear of spreading the disease. The parts should be cauterized thoroughly with the thermocautery after an operation and allowed to heal by granulation or a secondary suture performed. *X*-ray or radium treatment is of doubtful value in the mouth. Early diagnosis and early complete removal must remain the treatment at present. All tentative cauterizations must be avoided and the patient submitted at once to a radical operation, remembering that warts, moles, etc., may be considered as potential cancers.

68. **Cancer of Rectum.**—Inasmuch as acute inflammatory conditions producing perirectal infiltration, tuberculosis and syphilis or benign neoplasms are the conditions usually mistaken for cancer of the rectum, Stewart thinks it probable that the cures following colostomy have really been for one of the above conditions. Cancer of the rectum is not necessarily a disease of middle or advanced life; it may occur in early adult life. The slowness with which the growth involves the surrounding structures emphasizes the value of early radical excision. From the patient's standpoint, good surgical judgment is of far more importance than great operative skill, as he may be injured by an excision, no matter how skilfully performed, if the growth has clearly extended beyond operative limits, as his suffering could have been as effectively relieved by a simple colostomy. In the majority of cases, the operation to be recommended for the removal of the cancerous growth is the combined abdominal and perineal methods, by which the entire rectum is excised, including the lymphatic-bearing area behind the rectum. This operation should not be undertaken except by an experienced abdominal surgeon. Unfortunately it is applicable only in the minority of cases; much, however, may be done in the worst cases by inguinal colostomy.

69. **Cancer of Uterus.**—Cullen asserts that any bloody or watery vaginal discharge that cannot be definitely accounted for demands an immediate and careful local examination. When the physician cannot decide whether or not malignancy exists, a specimen should be sent to the pathologist. Extra-uterine pregnancy frequently gives rise to intermenstrual bleeding and occasionally to a slight menstrual discharge, but there is usually a history of a missed period or of a period that has persisted, and localized pain. Pelvic inflammatory conditions are sometimes accompanied by a bloody or watery discharge, but in these cases a recent local vaginal infection or an old pelvic lesion may account for the condition. Here, too, there is rise of temperature, whereas in early cancer there is no fever.

72. ***X*-Ray in Carcinoma of the Breast.**—Newcomet says that occasionally one will see some remarkable instances of advanced disease yielding to the *x*-rays. This, however, is not usual, for the best results are to be found by prompt and energetic treatment, and here alone is the only hope of removing the disease. At present, it is difficult to state the actual worth of the *x*-ray immediately after a primary operation as a prophylactic. Years of observation are necessary to reach definite conclusions. In cases showing involvement of the axillary glands early *x*-ray treatment may prove to be of great value. While cases of recurrence are not hopeful, the patients will sometimes recover after vigorous *x*-ray treatment. In unfavorable cases it should be ascertained whether or not the *x*-ray was properly applied, remembering that this is a new agent and one whose application is not thoroughly understood.

74. **Antisyphilitic Treatment of Tabes Dorsalis.**—Rhein advises antisyphilitic treatment in tabes because it is his belief that the antisyphilitic treatment should have a favorable influence on the meningitis which, it is proper to conclude, is present in most of the cases. While such a treatment may not have any direct bearing on the progress of tabes, it certainly cannot but favorably affect the meningitis which in many, if not all, of the cases is syphilitic in origin; and if this meningitis is not the cause of the degeneration in the posterior columns as is claimed by some, and which Rhein believes is doubtful, yet it is conceivable that the presence of such a meningitis cannot but unfavorably influence the progress of the tabetic process. The treatment should not, however, be prosecuted when cachexia, due to chronic liver, kidney, lung or other diseases, is present, and where the administration of the iodids and mercury increases auto-infections of a gastrointestinal type, or where optic atrophy is an early symptom.

Memphis Medical Monthly

November

76 Treatment of Typhoid. B. W. Fontaine, Memphis.
77 Case of Head Injury. B. N. Dunavant, Memphis.
78 Complications of Tympano-Mastoiditis. W. L. Simpson, Memphis.

Interstate Medical Journal, St. Louis

December

79 *Cure of Movable Kidney by Restoring the Standard Weight with a Pure Milk Diet. L. Kolipinski, Washington, D. C.
80 *Outlining of Normal Organs and Diagnosticating of Diseased Conditions of the Pleura and Lungs by Means of Palpation. F. M. Pottenger, Monrovia, Cal.
81 Labor as a Factor in Pelvic Disease. J. E. King, Buffalo.
82 Psychiatry (continued). S. I. Schwab, St. Louis.

79. **Movable Kidney.**—Kolipinski believes that dietetic treatment will cure most cases of movable kidney when emaciation is present. Hence it should be resorted to before any other method of cure or treatment is entertained. The operation of nephrorrhaphy may, he says, be done in the obese, in degenerative floating kidney, and the same with hydronephrosis and when the milk diet has restored the weight, but not the kidney, to normal.

80. Published in the *Lancet-Clinic*, Dec. 11, 1909.

Mississippi Medical Monthly, Vicksburg

December

83 *Causes of Insanity. V. B. Martin, Bogue Chitto.
84 Tapeworms. H. S. Capps, Gulfport.
85 Prognosis in Different Forms of Insanitay. T. E. Hewitt, Bogue Chitto.

83. **Tapeworm.**—The following prescription has given Capps excellent results:

℞.	gm. or c.c.		
Olioresin aspidii	8		ʒij
Chloroformi	4	or	ʒj
Olii tiglii	13		gtt. j
Glycerinæ	60		q. s., ℥ij

M. Sig.: To be taken in 2 doses at interval of an hour.

Capps generally directs his patients to fast for one or two days before taking the medicine; only a little milk or toast is allowed. On the day previous to administering the anthelmintic, a saline cathartic and an enema are given to clear the bowels. The next morning give the above prescription and follow within two or three hours with another saline. This generally succeeds in bringing away the worm. As the treatment is very weakening, however, follow it up with a tonic, containing brandy or strychnin. If the head of the worm is not secured, it will continue to form segments which will ripen and be discharged again within about three months. In this case the treatment is to be repeated. If no segments reappear in the stools after five or six months, the patient may be regarded as cured.

Woman's Medical Journal, Cincinnati

November

86 Morphology and Physiology of Areas of Langerhans in Some Vertebrates. L. M. De Witt, Ann Arbor, Mich.
87 Technic of Tonsillectomy and Adenectomy. G. P. Yankauer, New York.
88 Case of Hydatiform Mole. J. K. Qua, Amsterdam, N. Y.
89 Evolution of Asepsis. E. L. Call, Boston.

St. Paul Medical Journal

December

90 *Epidemic Paralysis. C. R. Ball, St. Paul.
91 *Infantile Paralysis. H. Davis, St. Paul.
92 Present Status of the Serotherapy of Puerperal Septic Infection. J. L. Rothrock, St. Paul.

90. **Epidemic Paralysis.**—Anterior poliomyelitis, as seen in epidemic form, according to Ball, presents so many different types that the names, "The New Disease" and "Epidemic Paralysis," do not seem inappropriate. The so-called abortive type in Ball's opinion simply means a case in which the nervous system has not been overcome by the toxin. Notable points are: 1. The usually free sensorium even in the fatal cases in contradistinction to the mental confusion and stupor in ordinary meningitis. 2. The method of death in the fatal cases by paralysis of the respiration. 3. The transient character of the paralysis, in some cases lasting from a few hours to several days, and then completely disappearing. 4. The sensitiveness of the nerves to pressure in the majority of cases before the development of the paralysis. 5. Rest in all cases from the very beginning and the possibility of preventing the occurrence of the paralysis in some cases by this measure.

91. **Infantile Paralysis.**—According to Davis, the treatment is not satisfactory. He cleans out the intestinal canal with calomel, and then uses salicylates, ergot and ice to the posterior cervical region. After the acute stage is over, he gives iodid of potassium and strychnin. In one case of respiratory paralysis he lowered the head, thereby flooding the upper spinal region and brain with blood, immediately relieving the distressing symptoms for half an hour, and then there was a return of the trouble, and death.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

November

93 Achylia Gastrica. A. L. Benedict, Buffalo, N. Y.
94 Dementia Præcox Caused by Dental Impaction. H. S. Upson, Cleveland.
95 Cataract. C. A. Oliver, Philadelphia.
96 Problem of Efficient Nursing for Persons of Moderate Means. W. O. Stillman, Albany, N. Y.
97 The Adrenals in Sudden Death (concluded). C. E. de M. Sajous, Philadelphia.
98 Influenza. J. V. Shoemaker, Philadelphia.
99 Infantile Gonorrheal Vulvovaginitis. Aphthous Stomatitis. W. C. Hollopeter, Philadelphia.
100 Light Energy in Treatment of Disease. J. F. Wallis, Norristown, Pa.
101 Medical and Surgical Testimonies on the Mummy Grove Potteries of old Peru. A. S. Ashmead, Philadelphia.

Journal Indiana State Medical Association, Fort Wayne

November

102 *Consideration of the Prophylaxis and Treatment of Cicatricial Rectal Stricture. A. B. Graham, Indianapolis.
103 Melanuria; Report of a Case. B. W. Rhamy, Fort Wayne
104 Sketches of the Medical History of Indiana (continued). G. W. H. Kemper, Muncie.
105 *Neglected Appendicitis. B. Van Sweringen, Fort Wayne.
106 Influenza—Its Complications and Treatment. B. W. Egan, Carrol.
107 Sporadic Cretinism; Results of Thyroid Feeding. E. Charles, Summitville.
108 Mechanical Assistant for the More Correct Adjustment of Colles' and Pott's Fractures. N. W. Cady, Logansport, Ind.
109 *The Appendotome. S. J. Young, Valparaiso.
110 Acute Endocarditis. W. F. Fankboner, Marion.
111 Status Lymphaticus. A. Kern, Wabash.
112 *Iliohypogastric Hyperesthesia. M. A. Austin, Anderson.

102. **Cicatricial Rectal Stricture.**—While the surgical measures employed in the treatment of cicatricial rectal stricture, excision, complete posterior proctotomy, colostomy and gradual dilatation have their fields of usefulness, Graham emphasizes the fact that no one of these surgical measures is applicable to every case; each must be studied carefully, and the operation of choice should be the one best suited to the existing conditions. Prophylaxis implies a careful rectal examination; a careful rectal examination implies an early diagnosis; an early diagnosis implies correct treatment, and correct treatment includes the prevention of a stricture.

When cicatricial rectal stricture is diagnosed, surgical intervention is indicated. In cases where there is no danger of infection, excision should be the choice of all surgical measures at our command. If successful, its results are ideal because it effects a cure by the complete removal of the stricture. In cases in which it is not safe to practice the excision method (and there are many such cases), complete posterior proctotomy or colostomy, either alone or combined, *should be performed*. Gradual dilatation should be employed only in cases of small annular stricture. In such cases it is possible that a symptomatic cure can be effected by this surgical measure. The excision method, he says, needs no defense, as its results are all that could be desired.

105, 112. Abstracted in The Journal, Oct. 23, 1909, pp. 1422, 1423.

109. **The Appendotome.**—This instrument is a combination of clamp and scissors. After ligation, it clamps, cuts, seals and removes the appendix at one stroke. This is all done with one hand, leaving the other free. It saves time. It prevents leakage from the proximal cut end of the appendix. It locks, automatically, and is removed from the field attached to the severed appendix, thus precluding subsequent use of the instrument in some other part of the operation—a mistake which is possible by other methods. The instrument is simple, easily and quickly taken apart when cleaned, and therefore aseptic.

Louisville Monthly Journal of Medicine and Surgery

December

113 *Medical Treatment of Exophthalmic Goiter. S. P. Beebe, New York.
114 Early Diagnosis of Gall-Stone Disease. J. E. Cannaday, Charleston, W. Va.
115 Acute Pancreatitis, due to Retroinjection of Bile. L. Frank, Louisville.
116 *Burns. A. H. Barkley, Lexington.

113. Abstracted in The Journal, Nov. 13, 1909, p. 1675.

116. Abstracted in The Journal, Nov. 20, 1909, p. 1709; also published in the *Virginia Medical Semi-Monthly*, Nov. 26, 1909.

Albany Medical Annals

December

117 The Exaggerated Fear of the Hospital and Operations. A. H. Traver, Albany.
118 The Alcoholic Psychoses. C. G. McGaffin, Taunton, Mass.
119 *Retrodisplacements of the Uterus. J. B. Harvie, Troy, N. Y.
120 Tuberculosis Dispensary work in Albany. A. T. Laird, Albany.

119. **Retrodisplacements of the Uterus.**—In Harvie's experience the Alexander operation has not been associated with complications during gestation except some discomfort referred to the inguinal region. Labor has not been complicated and the process of involution has been prompt and satisfactory. He has never seen a case presenting unusual complications following ventral suspension. The success of a ventral suspension necessitates the closest calculation to secure an easy resting place for the uterus so that the least strain will be obviated on its attachment. If the suture should be applied too far forward on the fundus so that the ligature is called on to sustain the weight of the uterus, it will be a matter of a very short time when it will break away from its moorings or the peritoneal ligament which is formed in those cases will become so stretched out that the uterus will be permitted to drop back in its former position. The moment the peritoneal ligament is called on to sustain the weight of the organ it soon ceases to be of any use, but so long as it performs its functions by acting as a stay just so long will it continue to hold the uterus in anteversion.

Intraabdominal shortening of the round ligaments, as recommended by Mann, Wylie and others, has not proved satisfactory in Harvie's work. He has done this operation a few times, and has, in addition, supplemented it by placing a purse-string suture low down in the broad ligament. This seemed to maintain the uterus fairly well in a forward position, and Harvie sees no objection to the proceeding, but is unable to speak of its permanency inasmuch as the operations have been done too recently. One of the women operated on is now pregnant for the first time and so far has expressed very little discomfort. He believes, however, that the feeble attachment of the round ligaments in the inguinal canal would argue against their standing any prolonged strain and this has perhaps accounted for the reported failures of the Wylie and Mann operations.

Texas State Journal of Medicine, Fort Worth

December

121 Practical Applications of New Tests of the Semicircular Canals. M. E. Taber, Dallas.
122 Five Cases of Hypernephroma. J. J. Terrill, Galveston.
123 Importance of Teaching Oral Hygiene in the Public Schools. L. P. Robertson, Marlin.
124 Medical Ethics. J. W. Largent, McKinney.
125 Mineral Wells: Its Climatology and the Therapeutic Value of its Waters. J. H. Eastland, Mineral Wells.
126 Symptom Grouping in Typhoid. R. L. Kimmins, Iredell.
127 Diagnosis and Treatment of Typhoid. J. Greenwood, Galveston.
128 Local Anesthesia in General Surgery. L. F. Watson, Oklahoma City, Okla.
129 Diagnosis and Surgical Treatment of Diseases of the Upper Abdominal Cavity. W. W. Grant, Denver, Colo.

Buffalo Medical Journal

December

130 Our Family's Solution of the Milk Problem. W. S. Bull, Buffalo.
131 Headaches and their Treatment. G. Rankin, Buffalo.

Progressive Medicine, Philadelphia

December

132 Diseases of the Digestive Tract and Allied Organs, the Liver and Pancreas. D. L. Edsall, Philadelphia.
133 Diseases of the Kidneys. J. R. Bradford, London.
134 Surgery of the Extremities, Tumors, Surgery of Joints, Shock, Anesthesia, and Infections. J. C. Bloodgood, Baltimore.
135 Genitourinary Diseases. W. T. Belfield, Chicago.
136 Practical Therapeutic Referendum. H. R. M. Landis, Philadelphia.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

December 11

1 Acute Overstraining of the Heart. Professor Schott.
2 *Functional Disorders of the Colon. E. W. H. Groves.
3 *The Rôle of Fats in the Treatment of Disorders of the Stomach. F. C. Moore and R. L. Ferguson.
4 Relationship between Avian and Human Tuberculosis. S. G. Shattock and L. S. Dudgeon.
5 Use of Radium for Local Application within the Body. A. C. Jordan.

2. Functional Disorders of the Colon.—Groves describes all conditions of the colon which are associated with marked constipation without the occurrence of any gross disease. He includes, on the one hand, the extreme cases of idiopathic dilatation of the colon, most of which are congenital; and, on the other, those cases of chronic constipation which are probably due to a sluggish action of the large intestine. For details the original article must be consulted.

3. Fats in the Treatment of Stomach Disorders.—In 62 cases in which there were subjective manifestations of gastric disorder, either with or without indications of organic disease of the stomach, the effect of the administration of oil of sweet almonds on the secretory activity of the stomach was determined by Moore and Ferguson. On consecutive days a plain test breakfast and a test breakfast preceded 30 minutes by one ounce of almond oil was given, and in the stomach contents the free HCl and the total acidity were estimated; in certain cases the digestive power of the stomach contents (peptic and tryptic) was also determined by the method of Mett. The stomach contents after the oil breakfast separated on standing into three layers—oil on the surface, the fluid contents with its granular sediment below, and between the two a narrow layer of emulsified oil, and but for the presence of the oil the contents were similar in appearance to those after the control meal; in no instance was there any evidence of the presence of bile pigments or of variations in the mucous content, and the quantity varied quite irregularly, being in some greater, in others less than in the control.

The results of the analyses expressed in averages where a series of observations were made on any one case, show without exception that the administration of oil is associated with a marked reduction in the acid values, free HCl and total acidity, of the stomach contents. Although it is well recognized that in any individual, normal or otherwise, the acid values of the stomach contents, removed at a definite time after a meal of constant composition, vary within somewhat wide limits, yet the constancy with which they are diminished after the exhibition of oil in so large a number of cases precludes the possibility of coincidence.

Clinically, the administration of fats, such as cream, butter, almond oil, in conditions in which hyperacidity of the stomach contents has been found to exist, has shown this action of fats to be associated with a very definite amelioration of the subjective manifestations of the condition. In simple forms of hyperacidity depending on slight degrees of digestive hypersecretion (the so-called hyperchlorhydria of Riegel), the addition of cream and butter in abundance to the diet, with a diminution of the starches, will often suffice to remove the subjective manifestations. It is only in the severe types, and particularly of the severe degrees of digestive or continuous hypersecretion so commonly associated with chronic ulcer about the pylorus or duodenum, in which heart-burn, acid pyrosis, the sudden gnawing pain in the epigastrium ascribed to pyloric spasm, and the vomiting of acid fluid, that the administration of almond oil is undertaken, and then in doses of one ounce first thing in the morning and repeated before subsequent meals if necessary. This method has proved of value not only in alleviating the symptoms which follow the digestion of food in the stomach, but also in contributing very considerably to the nutrition of the patient, and is certainly preferable to the sole use of alkalies for the purpose of *neutralizing the hyperacid stomach contents, and so obtaining* relief from the symptoms. In no case have they found that oil so administered has been badly tolerated or in any way proved objectionable.

British Medical Journal, London

December 11

6 Mistakes in Diagnosis and their Avoidance. R. P. Rowlands.
7 *Physical Signs of Incipient Pulmonary Tuberculosis. D. B. Lees.
8 *Severe Persis' [illegible] . W. Dewar.
9 The Dietetic [illegible] A. Bryce.
10 *Treatment of [illegible] 'lelland.
11 Tetanus Treated with Carbolic Injections: Recovery. E. M. Phillips.
12 Congenital Blennorrhea of the Lachrymal Sac. J. Foster.
13 Perforating Wound of the Eye: Operation: Recovery. C. Killick.
14 Chronic Disease of the Colliculus Seminalis. A. Edwards.
15 Use of Pure Animal Wool in Medical and Surgical Work. N. Porritt.

7. Physical Signs of Incipient Pulmonary Tuberculosis.—During the last four years Lees has treated all his cases of early pulmonary tuberculosis by inhalation of antiseptics with remarkable results. The inhaler employed has been the simple oro-nasal cage of perforated zinc advocated by Yeo. It is worn over the nose and mouth and is kept in place by elastic bands behind the ears; it contains a piece of sponge or felt on which the solution is dropped. The only precaution necessary is to take care that the edges of the inhaler which rest on the skin are not wetted, lest the skin should be stained or made sore. The antiseptic solution employed has been:

℞.	gm. or c.c.		
Acidi carbolici	8		ʒij
Creosoti	8		ʒij
Tinct. iodi	4	or	ʒj
Spir. ætheris	4		ʒj
Spir. chloroformi	8		ʒij

Of this solution, 6 to 8 drops are poured on the felt of the inhaler every hour during the daytime, and two or three times during the night, if the patient is awake. The odor of the solution is not unpleasant, and patients appear to derive great benefit from its use. Cough is readily relieved without any sedative or expectorant medicines, and sputum, if any, is more easily expectorated, and is lessened in quantity. The use of this solution has no irritating tendency, nor does it cause hemoptysis. If hemorrhage should occur, it might be well to remember Yeo's suggestion and add turpentine to the solution.

The absolutely continuous use of the inhaler (except at meal-time) must be rigidly required, and it is very desirable to keep the patient at rest in bed for a week at least, the windows of his bedroom being widely open. During the second week he may be allowed to rise for an hour or two daily, but the continuous use of the inhaler is essential. When the temperature is normal, after the first ten days or so, he may be allowed to omit the inhaler for an hour every morning and take a walk in the open air. Gradually the periods of exercise may be increased and the number of hours during which the inhaler is used may be very gradually diminished.

8. **Severe Persistent Hemoptysis.**—Dewar checked the bleeding by intravenous injection of 10 c.c. of normal serum by the mouth, three times a day, all other means of treatment having proved futile.

10. **Treatment of Chlorosis.**—Melland emphasizes the importance of elimination of water by the bowel, by the kidney, or by the skin, but the intake of water must be limited at the same time, and he recommends taking as little salt with the food as possible. It has struck him as a possible explanation of the origin of chlorosis, which is still wrapped in mystery, that the kidneys might be functionally incapable of secreting urine containing more than a certain proportion of salts, such as is well-known to be the case in chronic interstitial nephritis, with resulting retention of salts and retention of fluids to keep the salts in solution.

Medical Press and Circular, London

November 24

16 Examination of the Person. F. J. Smith.
17 Study and Treatment of Acute Peritonitis (continued). Professor Federmann.
18 The Teaching of Practical Midwifery in the Past, and at the Present Time. H. Jellett.
19 Relations of Physic to Physics, and their Bearing on Therapeutics. W. G. Smith.

Clinical Journal, London

November 24

20 *Difficulties* and Dangers Met with in Connection with Uterine *Fibroids.* T. G. Stevens.
21 Stricture of Intestine. F. J. Steward.
22 Routine Treatment of Recent Syphilis. H. Oppenheimer.

Journal of Tropical Medicine and Hygiene, London

December 1

23 Peripheral Neuritis of Malarial Origin. G. H. Fink.
24 Bilharziosis of the Penis. F. C. Madden.
25 Spirillum *Found in Cases of Relapsing* Fever in the Sudan. J. B. Christopherson.

Indian *Medical Gazette*, Calcutta

November

26 Indications and Technic of *Transfusion in* Cholera: Cholera in Europeans in Calcutta. L. Rogers.
27 One Hundred Consecutive Cases Operated on under Spinal Analgesia. H. B. Melville.
28 Litholapaxy in Young Children; Suggestions for a Modified Evacuating Apparatus. A. Lankester.
29 Experiences with *the Lactic* Acid Bacillus. J. R. Roberts.

Intercolonial Medical Journal of Australasia, Melbourne

October

30 Hernia in Infants. R. H. Russell.
31 *Trephining for *Double Optic* Neuritis. J. W. Barrett and W. F. Orr.
32 Traumatic Pulsating Exophthalmos. J. W. Barrett and W. F. Orr.
33 Clinical Chemistry of the Urine. A. H. Rothera.

31. **Trephining for Double Optic Neuritis.**—The patient complained of headache, had been feeling out of sorts for some time, and had suffered *from* slight giddiness on stooping. About Christmas time she suffered from nausea but actually vomited for the *first time* on New Year's day. The vomiting came on suddenly and recurred frequently, sometimes immediately after food, sometimes two hours after food. She suffered from increasing headaches. The pain was not localized, but affected the whole of the head. Subsequently, objects seemed to turn around and she saw double. She then found that she was losing control over the right hand in playing the piano. Listlessness and weakness developed to such an extent that sitting up was troublesome. There was no history of any previous illness, beyond an injury to the back of the head some years since, which apparently did not leave any after-effects, and was due to a fall.

When examined first, the vision was, right eye, 6/24; left eye, 6/24. Fundus, media and fields were normal, but there was marked rotatory nystagmus in both eyes, which probably accounted for the defective vision. She had difficulty in walking, and had little control over her legs. She complained that when she stood up, objects seemed to be moving round in a direction reverse to that of the hands of a clock. While unable to stand firmly, she did *not* tend to fall in any particular direction. She complained in a general way of pain behind and below the right ear. Knee jerks were active right and left. Urine normal. The right side of the face and the fore *part of the head was markedly* anesthetic, and there was anesthesia of the left leg from the knee downward. There was *also anesthesia on the right side* of the tongue. She was put to bed and treated with small doses of mercury and iodids. The *rest in bed was at first followed by* some amelioration of the general symptoms, but was soon followed by the development of violent optic neuritis on both sides, commencing first on the left side, but becoming more marked on the right.

In the course of four or five days, the elevation of the discs became considerable, amounting to between two and three diopters, and the other symptoms intensified. She was then trephined on the right side below the tentorium, and midway between the ear and the occipital protuberance. The dura mater bulged; there was little pulsation. On the opening of the dura mater, there was little escape of cerebrospinal fluid, but very marked protrusion of the brain. A trochar was introduced in various directions, and forward and in the midline, in the direction of the superior cerebral peduncles, it was thought that there could be detected material of different consistency. It was conjectured that there was a new growth in this position, but its removal was considered inadvisable. A few days after operation, considerable escape of cerebrospinal fluid occurred through the wound, and continued for some time. The headache lessened and general condition improved. The rotatory nystagmus was much less, and the neuritis was perhaps a little less intense. Pupils reacted to light and accommodation. During the next fortnight, the patient lost ground and appeared to be almost moribund. There were occasional clonic spasms throughout the entire body associated with collapse and partial loss of consciousness. The temperature rose to 103 F., and vomiting was frequent. At the request of the father of the patient, radium was applied to the wound.

From this time, steady improvement took place. What the lesion may have been in this case, it is idle to speculate. It is sufficient to note that the effectual decompression of the brain stopped the optic neuritis, restored vision, and has, at all events for the time being, put an end to the imminent danger to life. It is improbable from the subsequent history that there will be any further trouble.

The Dublin Journal of Medical Science

November

34 Aims of Anatomy. A. C. Geddes.
35 Hematemesis and its Surgical Treatment. W. Taylor.

Archives Générales de Médecine, Paris

October, LXXXIX, No. 10, pp. 741-804

36 Deep Pitting Following Subcutaneous Injections of Quinin in the Obese. (Theorie adipogénétique des eschares produites par les injections sous-cutanées de quinine.) F. Gorriti.
37 Psychic Disturbances in Insular Sclerosis. (Troubles psychiques dans la sclérose en plaques.) Euzière.
38 Pleurisy with Effusion of the Apex. (La pleurite exsudative du sommet.) B. F. Marcou.

Lyon Chirurgical, Lyons

November 1, II, No. 6, pp. 651-762

39 Diversion of Fecal Matters in Treatment of Cancer of the Rectum. (Etude critique de la dérivation préalable, temporaire ou definitive, des matières dans le traitement chirurgical du cancer du rectum.) L. Bérard and A. Chalier.
40 Treament of Foreign Bodies in Air Passages. (Le traitement des corps étrangers des voies respiratoires.) Sargnon and Barlatier.
41 Anatomy and Physiology of the Foot. (Variations sur l'anatomie et la physiologie du pied.) E. Destot. Commenced in No. 5.
42 Hernia in Front of and Behind the Uterus as Factor in Prolapse. (Les hernies pré et rétro-utérines dans la constitution des prolapsus.) H. Violet. *Commenced in No. 5.*
43 Conservative Treatment of Sarcoma of *Long Bones.* (Etude du traitement conservateur dans les sarcomes présumés *malins des os longs.)* M. Gangolphe.

Obstétrique, Paris

October, II, N. S., No. 10, pp. 693-796

44 Structure and Development of the Uterus Muscle. E. Retterer and A. Lillèvre.
45 *Contracted Pelvis and Childbirth. (L'accouchement dans les bassins rétrécis.) E. Pestalozza.
46 Successful Vaginal Cesarean Section in 9 Cases of Eclampsia. (A propos de la dilatation rapide du col et de la césarienne vaginale.) E. Essen-Möller.

45. **Delivery with Contracted Pelvis.**—This is the third address on this subject which Pestalozza has delivered by request before international medical congresses. He reviews

the progress realized during the years since his first address at Geneva in 1896, regarding Müller's method of measurement by palpation as the most important achievement the years have brought. The only other important advance in the management of contracted pelvis of late, he declares, is the increasing tendency to expectant treatment. This requires, however, that the woman must be under constant supervision, and preferably in an institution where all is prepared for a serious operation if such becomes necessary. In his experience spontaneous delivery occurred on an average in 50 per cent. of all cases in which the true conjugate was between 7.5 and 10 cm. The danger of rupture of the uterus when the woman has passed through a previous pregnancy sets a limit to expectant treatment for pluriparæ. Pubiotomy is contraindicated for primiparæ, at least for those with rigid soft parts. Cesarean section is favored by operating in the Trendelenburg position, drawing the uterus out before opening it, and making a transverse incision in the fundus without previous hemostasis. His mortality in 14 pubiotomies and 7 symphyseotomies has been 19 per cent., while it was only 7 per cent. in 71 Cesarean sections. Excluding the fatalities for which the operation was not responsible in any way, the mortality was only 3 per cent. in 68 Cesarean sections. The new revival of the old forms of Cesarean section, extraperitoneal, suprasymphyseal, etc., he does not regard as much of an acquisition. There is only one operation that is safe in cases of manifest infection, and that is embryotomy on the living child. In 63 cases of contracted pelvis at the Rome lying-in clinic in his charge last year, spontaneous delivery occurred in 23, in 13 delivery was aided with forceps, in 3 by version, in 5 by induced premature delivery, in 4 by pubiotomy, and in 15 by Cesarean section; perforation was not required in any instance. The clinic has a regular and flourishing outside department for obstetric aid in the home, which has enabled all the women with contracted pelves to be sent in time to the clinic in a practically aseptic condition.

Presse Médicale, Paris

November 17, XVII, No. 92, pp. 817-824

47 Mechanism of Lactation. J. P. Langlois.
48 *Induced Mydriasis as Test for Pupil Reaction. (L'épreuve de la "mydriase provoquée" et l'inégalité pupillaire.) A. Cantonnet.

November 20, No. 93, pp. 825-840

49 *Suprarenal Treatment of Osteomalacia. L. Bernard.
50 *Dangers of Taxis in Hernia. (Réflexions sur le taxis.) P. Hardouin.
51 Serodiagnosis of Echinococcus Disease. (Quelques données pratiques sur le précipito-diagnostic de l'échinococcose.) G. Fleig and M. Lisbonne.
52 The Rôle of the Microbes. G. Barbézieux.

November 24, No. 94, pp. 841-848

53 Moving Pictures of Ultramicroscopic Field. (L'ultramicroscope et la cinématographie.) M. Comandon.

November 27, No. 95, pp. 849-856

54 *Typhobacillosis and Tardy Localizations of Acute Tuberculous Infection in Children. (Typhobacillose de Landouzy.) E. Weill and G. Mouriquand.

December 1, No. 96, pp. 857-864

55 Cyclic Depression and Exaltation. (La cyclothymie.) P. Hartenberg.
56 Roentgen-Ray Examination of Appendix and Stomach. (Diagnostic d'appendicite et radioscopie gastrique.) G. Leven and G. Barret.

48. **Differential Diagnosis with Induced Mydriasis.**—Cantonnet remarks that the loss of the pupil reflex occurs much more frequently than is commonly supposed, as it is not recognized until the reflex contraction of the iris is almost entirely lost; slight impairment of contracting power is overlooked. In order to detect it in its incipiency the eyes should be examined with as little light as possible, illuminating both eyes exactly alike, the accommodation muscles relaxed by having the patient look at some object several yards away. The examination is still further facilitated by instilling into each eye the same small amount of a 4 per cent. solution of cocain. This induces a gradual mydriasis, less marked than that from atropin, and not appearing for from 8 to 15 minutes. Any lack of symmetry in the dilatation of the iris is rendered plainly apparent by this means and slight inequality is magnified to excessive proportions. In 67 tuberculous patients only 3 had a normal pupil reflex, and these were in the earliest stage of the disease; only 4 in 18 patients with exophthalmic goiter, and 8 of 39 patients with organic nervous disease. In 33 of the positive responses to the induced mydriatic test there was nothing to suggest this loss of the pupil reflex before the application of the test.

49. **Adrenalin in Treatment of Osteomalacia.**—Bernard reports a case of non-puerperal osteomalacia in a woman of 36. The first symptoms had been observed at the age of 16 after a nervous shock and were ascribed to a nervous origin until the girl became quite crippled with several spontaneous fractures. Immobilization for a year and a half induced some improvement, but two years later nervous stress and overwork were followed by recurrence and exaggeration of the symptoms of osteomalacia. After two years in bed and failure of all other measures, suprarenal extract was given according to Bossi's technic. By the thirtieth injection great improvement was manifest and in time the entire syndrome was arrested, the bones were apparently restored to approximately normal, all pains ceased and almost complete functional capacity was restored. From eight to ten injections were made each month, in single doses of 1 c.c. Not a trace of injury from the suprarenal treatment has been discovered in this case. He is inclined to ascribe its effect to an influence arresting the decalcification of the bones which he regards as the essential process in osteomalacia, both this and rachitis representing practically the same process, differing only in the age at which it occurs.

50. **Taxis in Hernia.**—Hardouin declares that forcible reduction of a strangulated hernia should never be attempted except when everything is in readiness for an immediate operation. It does not belong in the domain of ordinary medical practice, but it had been applied in all of his 12 cases of gangrene of a strangulated hernia and in all but 3 or 4 of his 70 cases of strangulated hernia in general. Before taxis is attempted the patient must be anesthetized and everything else done to reduce the contraction of the wall preventing the reduction of the hernia. The congestion in the loop of intestine must also be reduced as much as possible and the loop should be reduced spontaneously by traction from its mesentery, never by applying force directly to the hernia. The abdominal wall contracts on account of the pain, and consequently the pain should be abolished by a preliminary injection of 0.01 gm. morphin; the patient should draw up the legs, and a small pillow should be placed under the shoulders to relax the abdominal muscles. To the hernia itself, ice or compresses wrung out from ice water or ether, should be applied, and the buttocks raised, the head and shoulders being lowered. The mass of intestines slides down on the diaphragm and the mesentery under the influence of gravity pulls on the loop strangulated in the hernia, and exactly in the best way to induce its spontaneous reduction. If reduction is in any way possible these measures will accomplish it in two hours at most. If they fail, direct force would not have accomplished more. The patient is then in the best conditions for an immediate operation and there need be no fear of the serious complications liable to follow even the most careful taxis. In one case he applied gentle continuous pressure with his fingers for not longer than five minutes, and found distinct traces of interstitial hemorrhage at each point where the fingers had been applied.

54. **"Typhobacillosis" in Children.**—This term was applied by Landouzy to a general tuberculosis which induces a syndrome suggesting typhoid at first. A number of such cases are described here, with others of tardy localization in the meninges, peritoneum, pleura or lungs. The typhobacillosis in itself seems to be a mild affection if there is no special localization, but the bacilli circulating in the blood generally settle at some point of lesser resistance. In the child more than in adults, Weill remarks, local tuberculous affections are more apt to be preceded by this acute phase of typhobacillosis.

Beiträge zur klinischen Chirurgie, Tübingen

September, LXIV, No. 3, pp. 539-780

57 Fever after Goiter Operations and Traumatic Rupture of a [illegible] r. (Zur Frage des Fiebers nach Kropf- [illegible] aczek.
58 [illegible] Fracture. (Zum Mechanismus der Torsionsfraktur.) H. Zuppinger.

59 Relaxation of Muscles in Extension for Fracture of Leg. (Muskelentspannung bei der Permanentextension der Ober- und Unterschenkelfrakturen.) Id.
60 Sarcoma of Tendon Sheaths. (Zur Kenntnis der Sehnenscheidensarkome.) A. Rosenthal.
61 Plastic Closure of Gap in Ureter. (Plastische Deckung von Ureterdefekten.) H. Flörcken.
62 Pseudoinvagination of Appendix. (Ueber Pseudoinvagination des cystisch veränderten Processus vermiformis.) J. E. Schmidt.
63 Appendix Cysts and Diverticula. Elbe.
64 *Aims and Tasks of Experimental Surgery. (Leistungen und Aufgaben der experimentellen Chirurgie.) H. Klose.
65 Relations of Neurology to Surgery. (Beziehungen der Neurologie zur Chirurgie.) H. Vogt.
66 Pathogenesis and Etiology of Static Coxa Vara. W. Hagen.

64. **Experimental Surgery.**—Klose describes in detail the new institute just completed at Frankfurt for topographic and experimental surgery and allied research, and discusses the ends and aims of such work. He expatiates on the importance of the principle that the conditions in experimental work must be identical in every respect with those of clinical surgery, as otherwise the deductions drawn for man are misleading. He also emphasizes the importance of conducting metabolic research as the invariable accompaniment of surgical research. Neurology, biochemistry, etc., are all indispensable, so that those doing experimental surgical work must have a thorough knowledge of at least the more important branches of medicine, besides being well grounded in the historical, literary and anatomic aspects of the subject, overcoming difficulties with energy and precision technic, and must also be humane and capable of inaugurating and superintending extensive research work.

Berliner klinische Wochenschrift

November 22, XLVI, No. 47, pp. 2089-2132

67 Treatment of Placenta Prævia. J. Veit.
68 Dissecting Aneurisms with Puerperal Eclampsia. C. Wegelin.
69 *Relations between Pregnancy and Diabetes, and Treatment. (Schwangerschaft und Zuckerkrankheit, ihre Wechselbeziehungen und Behandlung.) H. Neumann.
70 Two Cases of Operative Cure of Multiple Cholangitic Liver Abscesses. A. Hochheimer.
71 Influence of Sports on Vital Capacity. W. Frankfurther.

November 29, No. 48, pp. 2133-2176

72 Pathogenesis of Dropsy of Renal Origin. (Zur Pathogenese der Nierenwassersucht.) P. F. Richter.
73 Gastroscopy. (Ein Gastroskop.) H. Elsner.
74 Decline in Mortality from Tuberculosis. (Abnahme der Tuberkulosesterblichkeit.) A. Gottstein.
75 Shaking Renders Ferments and Complement Inactive. (Ueber die Inaktivierung der Komplemente durch Schütteln.) M. Jacoby and A. Schütze.
76 Nature of Antitrypsin in the Serum. O. Schwarz.
77 Improved Technic for Graphic Registration of Pulse. (Zur Methodik der Pulsschreibung.) F. Fleischer.
78 Indications and Technic for Vaginal Operations. G. Siefart.
79 High-Frequency Currents in Therapeutics. (Ueber d'Arsonvalisation.) F. Nagelschmidt.

69. **Pregnancy and Diabetes.**—Neumann has encountered 6 cases of diabetes with pregnancy; 4 of the women had inherited the tendency to diabetes and the others were from neurotic families with obesity or syphilis. In 4 the first signs of the diabetes were observed during the pregnancy; another developed the diabetes after emotional stress and the sixth woman showed signs of diabetes a few months after her first and difficult childbirth. Under dietetic measures the pregnancy proceeded in all unmolested to term. The tendency to a malignant course in the young imposes the necessity of forbidding marriage to diabetic girls and protecting diabetic married women against conception. Diabetic women who have become pregnant and pregnant women who have become diabetic must be kept under close supervision and strict dietetic measures, which can be carried out at home. Operative intervention is necessary only when indications demand it without regard to the diabetes.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

October 30, XII, No. 19, pp. 721-768

80 *Postoperative Parotitis. D. G. Zesas. Commenced in No. 18.
81 *Fibrous Polyserositis and its Surgical Importance. (Morbus Bamberger.) L. Isler.

November 11, No. 20, pp. 769-800

82 Phosphaturia and Its Appearance in Gonorrhea. M. Oppenheim.

November 25, No. 21, pp. 801-848

83 Radiologic Indications for Operative Intervention on the Stomach. (Ueber radiologische Indikationen für operative Eingriffe am Magen.) S. Jonas. Commenced in No. 20.

80. **Postoperative Parotitis.**—Zesas reviews 162 articles or theses on this subject which have accumulated since it was described in 1879. All but 15 per cent. of the cases on record were in women, but the postoperative parotitis may develop after various kinds of operations or even after mere general anesthesia without operation. The trouble is always an inflammatory process in the gland, but in no case on record is there any mention of a focus of inflammation in the vicinity of the gland. The prognosis is generally grave, the mortality in the pure cases was 32.2 per cent., and in those with abscesses 34.44 per cent. Among the complications have been reported hemorrhages, thrombosis, mediastinitis, edema of the glottis and meningitis. The first symptom is generally high fever while the patient feels well and the wound is healing smoothly. This was recorded in 48 of the reported cases; in 5 others there was no change in temperature or pulse. Another constant early symptom is the dryness of the mouth. The parotid gland swells and becomes painful; the left is generally involved, seldom both. This condition lasts for 3 or 4 days, and in 40 per cent. of the cases smooth recovery then followed, while suppuration occurred in the others, and if the pus was not artificially evacuated it found its way toward the skin or into the mouth or auditory passages. As a rule, the parotitis is crossed. Bumm has reported a case of bilateral parotitis after bilateral removal of the ovaries. Some advise early incision, others wait for fluctuation. In case of extensive infiltration only prompt incision can prevent serious trouble. The main point is in prophylaxis; as the infection generally occurs from the mouth, the most careful care of the mouth before and after the operation is required and also care not to press on the jaw and gland while administering the anesthetic. After the operation, frequent cleansing of the mouth and teeth is advisable, a little citric acid being added to the water to stimulate the secretion of saliva.

81. **Polyserositis.**—Isler refers to the fibrous polyserositis first described by Bamberger, and reviews 60 articles on the subject, discussing the various features of the affection. The cases on record showed an acute onset, the abdomen being the scene of the drama; sudden pains generally interpreted as gall-stone colic, with vomiting, chills and depression. These symptoms subside but ascites develops and becomes chronic, or pleuropneumonia may be the first act and the heart may first present symptoms. The liver is generally enlarged and sometimes the spleen; jaundice was noted in the majority, but the recurring ascites is the main feature. The affection may last for from two to twenty-five years with occasional tapping, the general health being not much impaired until the patients succumb to debility from the loss of albumin in the effusions. The affection has an afebrile course, and the trouble is evidently due to toxins circulating in the blood. It has been called variably pericardiac pseudocirrhosis of the liver (Pick), iced liver (Curschmann), hyperplastic cirrhosis of the liver, peritonitis with exudation (Vierordt), fibrous polyserositis (Rose), orromenitis (Galvagni), and perivisceritis (Labadie-Lagrave).

Correspondenz-Blatt für Schweizer Aerzte, Basle

November 1, XXXIX, No. 21, pp. 721-760

84 Treatment of Hyperacidity with Alkalines. (Begründung der Alkalitherapie bei Hyperaciditätszuständen.) M. Hausmann.

November 15, No. 22, pp. 761-800

85 *Torsion of the Omentum. (Ueber Netztorsion.) P. Schönholzer.
86 *Tardy Chloroform Fatality. (Fall von protrahiertem Chloroformtod.) Häberlin.

85. **Torsion of the Omentum.**—Schönholzer has been able to find on record 70 cases of torsion of the omentum in recent literature and reports the details of 2 cases from his own experience. In about two-thirds of the cases the torsion occurred after a part of the omentum had slid down into a hernial sac. In case of adhesions the torsion may be double. In 8 cases the torsion was intra-abdominal, without apparent cause, and without connection with any other organ. One of his cases was of this kind; the patient was a young woman with signs of assumed appendicitis and probable abscess in the right side, but the laparotomy revealed that the omentum had twisted completely around four times and hung from the transverse colon with a corkscrew-like pedicle, the result of

a subacute or chronic unrecognized appendicitis of long duration with chronic inflammation of the omentum, local swelling, pedicle formation and gradual rotation of the resulting bag. If the circulation in the parts becomes impeded there is serious trouble at once. The large and rapidly increasing tumor on the same side as the hernia and the discovery of a hard, tender cord connecting the hernia with the tumor are the main differential features. In 8 of the 70 cases the patients succumbed to peritonitis following an incomplete operation or to postoperative pneumonia, arteriosclerosis or gangrene of the omentum; 2 died of peritonitis without surgical intervention. The omentum must be examined to its base to ensure discovery of any further torsion above. Neglect of this precaution is responsible for more than one fatality. In most of the cases, the severe syndrome has an acute onset but the patients then recall long preceding vague discomfort in the abdomen, generally referred to the hernia.

86. **Tardy Chloroform Fatality.**—Häberlin's patient was a previously healthy man of 25, inclined to abuse of alcohol, who was operated on for mild recurrent appendicitis. About 70 or 80 c.c. chloroform was used in the 25 minutes of the operation. The wound healed smoothly but jaundice developed by the third day and the patient died the sixth day with symptoms of general intoxication affecting the liver, kidneys and heart. The case is analogous in every respect, even to the fat degeneration of these organs, to the dozen cases on record of tardy chloroform death. These cases emphasize, he says, the importance of refraining from too vigorous purgation as liable to leave the blood too concentrated before the anesthetic is administered, and also the importance of ample supply of carbohydrate food to ensure adequate production of glycogen.

Deutsche medizinische Wochenschrift, Berlin

November 18, XXXV, No. 46, pp. 1993-2040

87 Nephritis and Alleged Inflammation of Parenchymatous Organs. H. Ribbert.
88 *Cerebellum Surgery. (Ueber Kleinhirnchirurgie.) O. Hildebrand.
89 *Glycosuria in Women. (Zur Glycosurie bei Frauen mit experimentellen Untersuchungen über ihre Aetiologie.). M. Henkel.
90 *Pubiotomy and Extraperitoneal Cesarean Section. (Hebosteotomie und extraperitonealer Kaiserschnitt.) K. Baisch.
91 *Importance of the Momburg Belt Tourniquet for Postpartum Hemorrhage. (Zur Anwendung der Aortenkompression nach Momburg bei einer Blutung in der Nachgeburtsperiode.) B. Kröning.
92 Diagnosis and Treatment of Glaucoma. L. Heine.
93 Imbecility from Clinical and Forensic Standpoint. W. Weygandt.
94 Therapeutic Combinations of Drugs (Kombination von Arzneimitteln.) G. Treupel.
95 Simplified Opsonic Technic. (Vorschläge zur Vereinfachung der Opsoniertechnik.) C. Hoerder.
96 *The Blood Diagnosis of Lead Poisoning. P. Schmidt.

November 25, No. 47, pp. 2041-2096

97 *Life Expectancy with Albuminuria. (Prognose der Albuminurie mit besonderer Berücksichtigung der Versicherungsmedizin.) M. Fürbringer.
98 Favorable Outlook for Serotherapy of Cholera. (Zur Frage der Serumtherapie der Cholera asiatica.) W. Kolle.
99 Heredity, Selection and Hygiene. (Vererbung, Auslese und Hygiene.) M. Gruber. Commenced in No. 46.
100 Analyses of New Proprietaries. (Neue Arzneimittel, Spezialitäten und Geheimmittel.) F. Zernik.

88. **Cerebellum Surgery.**—In this address read at the recent international medical congress Hildebrand reviews what has been accomplished in this line to date with the points that have proved useful in differentiation and localization of the lesions. He also discusses the technic and the results which differ widely according to the process in question. Conditions are favorable, he asserts, in case of a cerebellar cyst; only one of the 20 patients with this lesion died, although vision was irretrievably lost in a few. The others recovered. Hildebrand successfully removed an echinococcus cyst from the base of the cerebellum near the fourth ventricle, but the patient, a young woman, died a few months later from a similar lesion elsewhere in the brain. Conditions are much less favorable with a tuberculoma; 11 patients out of 20 succumbed soon after the operation and another nine days later. Only 8 patients survived the intervention and recurrences followed in from 2 to 7 months in all but 2 cases; one of these patients was in good health 13 months after the operation. Of the 2 patients with gumma one was cured and the other succumbed to the operation. Conditions are still less favorable with solid tumors in the cerebellum. Only 17 out of the 101 cases on record are reported as definite cures and the ultimate outcome is not known in all. Only in 39 of these cases was the diagnosis confirmed by the operation and 22 patients in this group died. In 62 cases the assumed tumor was not found, but in some of these autopsy or the clinical course later revealed the growth. How many of these cases in which no tumor was found are to be regarded as serous meningitis is still a question but in one case an interval since of four years seems to establish it. Surgical treatment in 30 cases of tumor at the cerebellopontine angle has been reported, with survival of 7 of the patients; in a number the tumor proved inoperable and in only 4 of the surviving 7 could the tumor be removed *in toto.* Injury of the fourth ventricle is the chief danger in removing tumors of this class; infection was the cause of the fatality in very few cases.

89. **Glycosuria in Women.**—Henkel reports a case of myoma and another of ovarian tumor both of which induced glycosuria which vanished after removal of the cause. It is important to differentiate these cases of "intoxication diabetes" from true diabetes, as any expectant or preparatory treatment is useless, the sugar disappearing spontaneously from the urine when the tumor is removed. The proportion of sugar in one of these cases was 3 per cent., the amount of urine was not much increased and there was no abnormal thirst. The findings of acetone or acetic acid are not characteristic as they are sometimes observed in purely gynecologic affections without diabetes. He hesitated before operating, dreading diabetic complications, but the course of the cases showed that the fear of true diabetes was unfounded.

90. **Operative Treatment of Contracted Pelvis.**—Baisch has compiled the statistics from a number of clinics in regard to pubiotomy and extraperitoneal Cesarean section. He states that with Döderlein's subcutaneous pubiotomy there need be no fear of sepsis, hemorrhage or injury of the bladder, but certain infection contraindicates this technic as also a true conjugate of less than 7 cm. and infantile genitalia in a primipara. Pubiotomy must not be preceded by the high forceps or version. He advocates a pelvis-enlarging operation or Cesarean section in institutions in the place of high forceps, prophylactic version or artificial premature delivery. With these principles the mortality of the mothers with contracted pelvis can be reduced below 1 per cent. and of the children below 10 per cent., while the number of spontaneous deliveries approximates 80 per cent.

91. **The Momburg Belt Tourniquet to Arrest Postpartum Hemorrhage.**—Kröning reports a case which has convinced him that this Momburg technic for compression of the aorta will banish the dread of hemorrhage in the third stage of labor for many physicians when they once have become convinced of the feasibility of the method. Its application for postpartum hemorrhage is particularly harmless as it is merely a brief compression while the blood pressure is unusually low, so that the patients can stand the raising of the blood pressure better than under other conditions. When the practitioner has a case of postpartum hemorrhage and must choose between compression of the aorta and introducing his insufficiently disinfected hand into the uterus, the former is by far the least dangerous. Even if the compression fails to arrest the hemorrhage completely, the physician at least gains time to disinfect his hands properly and be ready for skilful tamponing of the uterus. (See illustration, abstract 69 in these columns, Oct. 30, 1909, page 1519.)

96. **The Blood in Lead Poisoning.**—Schmidt has been studying the blood of 110 healthy and anemic persons, having nothing to do with lead, and Trautmann has examined 200. Comparison of the findings with those in 34 cases of certain lead poisoning and in 819 workers with lead has confirmed the fact that the blood picture becomes modified very early in the course of lead poisoning. The change in the blood is the granulation of the red corpuscles, the granules taking the basic stains. The microscope is thus able to reveal lead poisoning in its incipiency. More than 100 granulated red corpuscles per million should be accepted as an index of lead poisoning, the number usually ranging between 300 and 3,000;

in one case of suicide with white of lead 38,000 granulated corpuscles per million were encountered. Other affections with similar findings will seldom be confounded with lead poisoning, malaria, pernicious anemia, leucemia, chronic intestinal hemorrhage and cancer cachexia; malaria alone is liable to mislead in this respect. He has found in experimental research that long after the intake of lead has ceased, lead still circulates in the blood combined with the formed elements, especially the leucocytes. This probably occurs in man, and chemical examination of the blood may be necessary in very important and obscure cases, particularly in forensic testimony.

97. **Prognosis of Albuminuria from the Standpoint of Life Insurance.**—Fürbringer declares that very small proportions of albumin should not be taken into account in relation to life insurance, and consequently he does not regard as of much moment the efforts to produce more and more delicate tests for albuminuria. The so-called physiologic slight albuminuria after excessive exertion, sports, etc., may also be disregarded. The majority of cases of orthostatic albuminuria are also comparatively harmless; it is exceptional for nephritis to develop later in these cases. In examining it is important to note the absence of the higher blood pressure characteristic of contracted kidney, also that the urine is free from albumin during reclining. Another sign indicating the comparative harmlessness of orthostatic albuminuria is the precipitation of euglobin by acetic acid, cold. The more abundant the euglobulin, the better the prognosis. A few tube-casts and corpuscles are no longer regarded as indicating necessarily true nephritis; a predominance of the cylindroids speaks against the latter. He has frequently encountered a condition of slight chronic nephritis without any acute phase, characterized by continuous or intermittent slight albuminuria for years and decades, with occasional tube-casts, sometimes granulated, and corpuscles, but without other signs of actual nephritis and without impairment of the general health. Complete recovery occurred finally in 3 patients in his practice, and he advises their acceptance by the company with an extra premium or the proviso that the contract is void if death occurs from kidney disease. Actual nephritis should exclude the candidate from life insurance and the examiner should not be misled by the periods of latency. Prolonged observation is necessary for the subacute nephritis following an acute infectious disease, as also for pregnancy nephritis. As a rule the latter subsides completely, or it may leave merely the minute patches of contraction which are evidently responsible for the chronic benign form mentioned above; it is exceptional for true pregnancy nephritis to entail actual kidney disease.

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October, CII, Nos. 1-3, pp. 1-300

101 Congenital Hernia of the Brain due to Hydrops of the Ventricle. (Ueber Hirnbrüche.) A. Exner.
102 Nephropexy. R. Lenk.
103 Restoration of the Nose. (Zur Technik der totalen Rhinoplastik.) K. Foramiti.
104 Retrograde Incarceration of the Intestine. (Ueber das Wesen der sogenannten retrograden Inkarzeration des Darmes.) H. Lorenz.
105 Hernia of the Lung. (Lungenhernien.) J. Urbach.
106 Prehistoric Surgical Affections and Operations. K. Jäger.
107 Division of the Scaphoid Bone. (Ueber das Os naviculare bipartitum manus.) O. E. Schulz.
108 Importance of "Concave Torsion" in Treatment of Scoliosis (Bedeutung der sogenannten Konkavtorsion für die Therapie der Skoliosen.) R. Fibich.
109 Pathologic Cubitus Valgus. F. A. Schwarz.
110 Increased Secretion in Rabbit Intestine after Obstruction. (Experimentelle Untersuchungen über die vermehrte Sekretion des Kaninchendarms beim Darmverschluss.) J. Boese and H. Heyrovsky.
111 Statistics of Sarcoma on the Extremities. (Extremitätensarkome.) G. Piperata.
112 Massive Hemorrhage into the Bed of the Kidney. (Massenblutungen in das Nierenlager.) R. Lenk.
113 Two Cases of Leiomyosarcoma of the Gastrointestinal Tract. M. Richter.
114 What to Do with the Ureter in Nephrectomy for Tuberculosis. (Versorgung des Ureters bei Nephrektomie wegen Tuberkulose.) R. Paschkis.
115 Primary Carcinoma in the Appendix. (Beitrag zu den Irrtümern mikroskopischer Diagnosen.) R. Milner.
116 Ileus from Twofold Intestinal Obstruction. (Ileus infolge zweifachen Darmverschlusses.) Id.
117 Spontaneous Birth as Cause of Shoulder Deformity. (Spontangeburt als Ursache von Schulterdeformitäten.) H. Sellheim.
118 Importance of Wassermann Reaction for Surgical Diagnosis, especially the Stern Modification of the Test. Kreuter and R. Pöhlmann.
119 Hard Tumors of the Jaws. (Ueber Adamantinome insbes. ihre operative Behandlung.) S. Kinoshita.

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November 10, XXVII, No. 31, pp. 1153-1200

120 Clinical and Experimental Research on Atoxyl Poisoning. (Atoxylvergiftung.) G. Köster.
121 Present Status of Trachoma Research. Wolfrum.
122 Familial Chronic Leucemia. (Familiäres Auftreten der chronischen Leukämie.) F. Brandenberg.

Medizinische Klinik, Berlin

November 14, V, No. 46, pp. 1727-1766

123 Production of Keratin. (Ueber Verhornung.) P. G. Unna.
124 Serodiagnosis of Syphilis Controlled by Autopsy Findings. (Klinische Beobachtungen über die Wassermann-Neisser-Brucksche Reaktion und deren Kontrolle durch Sektionsresultate.) F. Glaser and G. Wolfsohn.
125 Chronic Organic Affections of the Central Nervous System Following Trauma. F. Schultze.
126 Drugs that Act on the Heart. (Ueber medikamentöse Herztherapie.) Lethaus.
127 Blunders in Diagnosis. (Einige Beispiele von diagnostischen Irrtümern und von selteneren Tumoren.) H. H. Preysing.
128 *Acute Dilatation of the Stomach. (Zur akuten Magendilatation.) H. Hellendall.
129 Antitryptic Action of Urine. (Ueber die antitryptische Wirkung des Harns.) J. Bauer and Z. Reich.

November 21, No. 47, pp. 1767-1802

130 *Epidemic of Acute Poliomyelitis. (Zu der rheinisch-westfälischen Epidemie von spinaler Kinderlähmung.) J. Grober.
131 Action of Antiseptics on Wounds. (Wirkungsweise der sogenannten Wundantiseptika.) K. Büdinger.
132 Importance of Tonsil Region in Relation to Acute Articular Rheumatism and Heart Diseases. (Erkrankung und Behandlung des lymphatischen Schlundrings in ihrer Bedeutung für Gelenkrheumatismus und Herzkrankheiten.) K. Hess.
133 Treatment of Coryza and Influenza with Electric Baths. (Behandlung des Schnupfens und der Influenza mit elektrischen Lichtkastenbädern.) R. May.
134 Treatment of Bromoform Poisoning. (Bromoformvergiftung.) Walldorf.
135 *Test for Estimation of Pepsin. (Eine neue Methode klinischer Pepsinbestimmung.) P. Liebmann.

128. **Acute Postoperative Dilatation of the Stomach.**—Hellendall has collected from the literature 91 cases of postoperative dilatation of the stomach with a cure in 32. The number of cases on record has tripled in the last eight years, while the proportion of cured cases has become much larger. The acute postoperative dilatation results from paralysis of the stomach walls of central or reflex origin, due to injury from the general anesthesia and the operative intervention itself, the dilatation being liable to lead to fatal kinking of the duodenum. The principal sign of it is discovery of pancreatic juice in the vomitus, large proportion of indican in the urine and the bilious character of the vomitus with clay-colored stools. In Schnitzler's case mesenteric incarceration of the duodenum followed acute dilatation of the stomach after a bilateral operation for hernia, and the patient was cured by lying in the ventral decubitus for several hours, without lavage of the stomach. Among the cases reported as cures there were 40 after abdominal operations, 12 with operations on the bile passages, and 21 after gynecologic operations. Fifteen prompt recoveries under this position treatment are on record, but Borchardt's patient died with fulminating exaggeration of the symptoms when the ventral decubitus was assumed. Special caution is necessary after a laparotomy. In Hellendall's first case the patient did not stand the position very well. In his second case the patient recovered under lavage of the stomach alone.

130. **Epidemic Spinal Paralysis.**—Grober discusses the present epidemic of spinal infantile paralysis in Germany calling attention to the way in which the classic syndrome seems to be becoming modified. It now includes cerebral features while the mortality is increasing until it averages 15 per cent. The frequency of gastrointestinal symptoms and lesions early in the disease confirms the assumption that the trouble is a general infection originating in the intestines and passing by way of the blood to localize finally in the brain and spinal cord.

135. **Clinical Estimation of Pepsin.**—Liebmann uses an emulsion of particles of coagulated egg albumin, measuring the proteolytic power on it of the gastric juice by the amount of dilution necessary to render limpid the contents of the control tube to the same degree as in the test-tube in a given interval of time

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November 16, LVI, No. 46, pp. 2353-2400

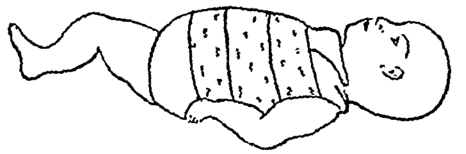
136 Acute Poliomyelitis. H. Hochhaus.
137 The Benzidin Test in Forensic Diagnosis of Blood Spots. (Praktische Verwertung der Benzidinprobe für die forensische Blutdiagnose.) H. Merkel.
138 Blood Supply of Sinus Node and its Connection with the Atrioventricular Node. (Blutversorgung des Sinusknotens und etwaige Beziehungen des letzteren zum Atrioventrikularknoten.) W. Koch.
139 Destructive Influence of Osmotic Currents on Bacteria. (Einfluss osmotischer Strömungen auf Entwicklung und Lebenstätigkeit der Bakterien.) F. Holzinger.
140 *Intravenous General Anesthesia. (Intravenöse Narkose mit Aether und Chloroform.) L. Burkhardt.
141 Traumatic Appendicitis. (Traumatische Perityphlitis.) M. Tiegel.
142 *Apparatus for Automatic Extension in Treatment of Fracture of Upper Arm and Shoulder. A. Hofmann.
143 *Treatment of Fracture of the Femur in New-Born Infants. (Zur Behandlung der Oberschenkelbrüche bei Neugeborenen.) G. Zancarini.
144 Negative Influence of Spengler's IK on Tuberculosis. (Behandlung mit Carl Spengler's IK.) H. Schaefer.
145 The Sternal Angle. (Zur Nomenklatur und klinischen Bedeutung des Sternalwinkels.) E. Ebstein.

November 23, No. 47, pp. 2401-2456

146 Normal Peristalsis of the Colon. G. Holzknecht.
147 *Cardiac Neuroses. (Herzneurosen.) G. Treupel.
148 *Remote Neuralgiform Affections of Intestinal Origin. (Ueber intestinale Körperschmerzen.) W. Ebstein.
149 Intravenous Suprarenal Treatment in Severe Cardiovascular Collapse. (Weitere klinische Erfahrungen über intravenöse Suprareninjektionen bei schweren Herz- und Gefässkollapsen.) M. John.
150 Eczema. (Zur Ekzemtherapie.) T. Veiel.
151 *Progress in Differential Pressure Procedures for Intrathoracic Operations. W. Meyer.
152 Behavior of Zinc-Copper Fragments Embedded in the Tissues. (Fremdkörper im Organismus.) H. v. Baeyer.
153 *Connection between Syphilis and Idiocy. (Zusammenhang von Idiotie und Syphilis.) H. Lippmann.
154 *Importance of Chloral for Pathologic-Anatomic Research and for Local Therapeutics. (Wert des Chloralhydrates für pathologischanatomische und lokaltherapeutische Zwecke.) A. Heller.
155 *Prophylaxis and Treatment of Impending Gangrene. (Drohender Fingergangrän bei Raynaudscher Krankheit.) H. Noesske.
156 Can We Prevent Blunders in Diagnosis and Treatment with Fractures and Dislocations? (Wie weit lassen sich Fehldiagnosen und Misserfolge bei Frakturen und Luxationen in der Praxis vermeiden?) R. Grashey.
157 *Treatment of Acute Rhinitis. J. Trumpp.

140. **Intravenous General Anesthesia.**—Burkhardt is convinced that there is no necessity for the anesthetic to traverse organs on its way to the blood and that the best results will be attained by introducing the drug directly into the circulation. After much experimental research he applied this technic in 33 clinical cases, injecting a 5 per cent. solution of ether like a saline infusion. The amount of fluid injected ranged from 200 to 800 c.c. There were no disturbances in breathing in any case nor cyanosis, vomiting or retching during the anesthesia or vomiting afterward in 30 cases. Three of his patients had nausea or vomited twice. In another series of 8 cases he injected a mixture of ether and chloroform or a 7 per cent. solution of ether; transient hemoglobinuria developed in one of these cases. In all the patients the anesthesia was tranquil and free from reflex action. A great advantage of this technic is that the blood pressure does not fall even during a long operation. An over-dose is scarcely to be feared on account of the low concentration, so that it is safer for the inexperienced than the usual inhalation anesthesia. Recovery afterward is more rapid and there are no by-effects. The drug is eliminated more rapidly than when inhaled. He generally precedes the intravenous infusion with the scopolamin-morphin twilight sleep.

143. **Treatment of Fracture of the Femur in the New-Born.**—Zancarini points out the disadvantages of ordinary treatment of obstetric fracture of the femur and describes a simple method which he has found satisfactory. The leg is flexed on the body similarly to the fetal position, the front of the thigh on the front of the abdomen, the foot reaching to the shoulder, the clavicle serving as the solid support. The trunk is protected with cotton and the bandage is passed around the leg and trunk. This position is borne readily by the new-born infant while it does not interfere with keeping the child clean. No skill is required for its application and the family accepts it more readily than weight extension or more complicated measures. He describes a few cases in which he has examined the children four and seven years after the fracture was cured in this way. The limbs show no trace of injury, not even in a skiagram, and the gait is normal. The leg is immobilized in this way for about twenty days, but the bandage is taken off every day and light massage applied.



147. **Cardiac Neuroses.**—Treupel emphasizes the necessity for long study of the case and winning the patient's confidence so that the particulars of the onset of the disturbances can be made out. This is of the greatest importance for treatment. He has had about 400 cases of this kind, free from organic basis. The neurosis had developed in consequence of increased or abnormal erotic sensations in about a third of his cases; in others after dread or excitement. In the pure neurosis the heart is not enlarged, rather the reverse; he has been impressed with the smallness of the heart in some patients, especially in young men. The patient must be examined sitting, standing and reclining and after exercise. Heart tonics are useless but sedatives and general tonics are indicated, with a light diet and restriction of fluids to about three pints, bed rest is indicated for a day or so occasionally if the patient is leading a strenuous life, and encouragement to exercise if too sedentary. The main point is to convince the patient that his heart is sound and that the subjective disturbances are of little moment. This and time are the chief factors in the cure.

148. **Pains Throughout the Body of Intestinal Origin.**—Ebstein refers to the neuralgiform pains at various points in the body curable by clearing out the clogged digestive tract. The painful affection is generally misunderstood and treatment instituted for rheumatism, etc., as he shows by several examples. The constipation in these cases is beyond relief by ordinary purgatives and enemas of oil are the only means of conquering it, as a rule. An important element in the differentiation is the discovery of tender points where the nerve emerges. He has encountered numerous cases of neuralgia in the knee and hip joint accompanying inveterate constipation and vanishing as the latter was cured. In one such case a robust army officer of 52 had chronic pains in the knees for which no objective cause could be found and the trouble seemed to be a nervous functional disturbance; it was so severe that he had to be lifted on his horse. Under large oil enemas the existing constipation was relieved and the knee trouble subsided with it. In another case an officer had taken all kinds of courses of treatment for supposed rheumatism in his knees but without effect until the oil enemas relieved his tendency to constipation, when the pains vanished. Every return of sluggish bowel action is followed by recurrence of the pain in the knees but the constant progress toward improvement promises final complete recovery. A history of trauma affecting the involved joint may prove misleading. The statements of the patient as to bowel functioning must not be relied on; there may be coprostasis even with diarrhea. The oil enemas soften the feces and then mild laxatives are able to push them along. He does not approve of strong purgatives in these cases.

151. Practically the same article was published in The Journal, Dec. 11, page 1978.

153. **Connection between Idiocy and Syphilis.**—Lippmann states that examination of 121 children in the asylum for mentally defective at Uchtspringe revealed signs of syphilis in 33.8 per cent. The seroreaction proved an important aid in the diagnosis, and he urges the unfailing application of the Wassermann test in all lying-in and gynecologic hospitals in order to detect the presence of syphilis and institute prophylactic measures. Baisch found that syphilis in women had escaped clinical recognition in fully three-fourths of all cases—not the slightest clinical sign being apparent in this large proportion in which the Wassermann test elicited a

positive response, and spirochetes were found in the placenta and the children showed signs of syphilis. The necessity for prompt specific treatment in such cases is emphasized anew by the discovery of the frequent connection between syphilis and actual idiocy. It also suggests the necessity for mercurial treatment of the mentally defective—astonishing improvements are on record. Even when there is nothing to suggest syphilis, he advises a tentative course of antisyphilitic treatment. This is his routine practice in every case of brain tumor.

154. **Chloral in Local Therapeutics.**—Heller says that autopsy of a number of children who had been treated with potassium chlorate revealed the blood so brown, especially in the lungs and skull, that the question arose in his mind whether the potassium chlorate might not have been responsible for the fatality. In any event, he declares that the same and better therapeutic effects in acute and chronic laryngeal catarrh can be obtained by having the patient take a thimbleful of a 2.5 per cent. solution of chloral into his mouth, throw the head back and roll the fluid around in the mouth, making chewing movements the while but not gargling, and spitting out the fluid when it cannot be retained in the mouth any longer. The head is then thrown back again to let the traces of fluid still remaining find their way back into the throat. This is repeated every half hour and it has a marked curative effect, checking bacterial growth, inducing local hyperemia and transudation while its anesthetic action reduces the tendency to inflammation. Quincke also advocated the use of a 2 per cent. chloral solution in the form of a spray in treatment of throat and mouth inflammatory processes. In tonsillitis he applied it as a powerful cold jet alone or combined with mercuric chlorid, preferring the latter alone only in syphilis, diphtheria and Vincent's angina.

155. **Treatment of Impending Gangrene of the Fingers.**—Noesske reports the further successful application of his method of cutting down to the bone at the tip of the finger parallel to and just below the nail, in treatment of conditions threatening gangrene. It was described in The Journal, Nov. 6, 1909, page 1605. He places the hand afterward in a suction cupping apparatus, and by this means was able to restore vitality to the fingers recently in a case of Reynaud's disease. The benefit in this affection suggests the possibility that the trouble is the result of local peripheral disturbance in the vascularization instead of the central origin hitherto assumed.

157. **Bolus Alba in Treatment of Coryza.**—Trumpp has applied bolus alba in his own person and in his family and practice with brilliant success as a means of aborting and curing rhinitis, the extreme fineness of the particles sucking up by capillary attraction the bacteria and the secretions and thus drying out the parts while killing the bacteria. He uses an ordinary powder insufflator; success depends on applying a layer of the powder over the entire inflamed surface, repeating the insufflation three or four times in 15 minute intervals at first and later at hour intervals. If there is much swelling a little adrenalin opens a way for the powder. Three or four insufflations the second day generally complete the cure. He applied this bolus treatment also in 4 cases of primary diphtheria of the nose, refraining from serum treatment. In all recovery was complete by the fourth or sixth day, without complications. Prompt recovery was also observed in a case of ozena of a few weeks' duration; the cure has persisted for two months to date. The powder comes away readily when the nose is blown and does no harm if it is swallowed. The best results are attained when the nasal passages are wide and readily accessible.

Virchows Archiv, Berlin

November, CXCVIII, No. 2, pp. 193-384

158 Unusual Findings in Appendicitis. G. Cagnetto.
159 Bacterial Embolism of the Lung. N. Strueff.
160 Action of Animal Albumin on Rabbits. (Wirkung des tierischen Eiweisses auf die Aorta und die parenchymatösen Organe der Kaninchen.) A. Ignatowski.
161 Calcification of Dura. (Ueber Verkalkung der Pachymeninx bei Usura cranii.) K. Nunokawa.
162 Plasma Cells in Progressive Paralysis. (Zur Plasmazellenfrage bei der progressiven allgemeinen Paralyse.) Rheindorf.
163 Patches of Sclerosis in the Spleen. (Induratio lienis fibrosa circumscripta.) I. Poscharissky.
164 Obliterating Mastitis. A. Ingier
165 Phagocytosis not a Factor in Defense against Infectious Disease. (Ueber die Spirochaete pallida und Spirillum Obermeieri, ihre intrazelluläre Lagerung und deren Bedeutung.) M. Rabinowitsch.

Wiener klinische Wochenschrift, Vienna

November 25, XXII, No. 47, pp. 1623-1662

166 Production of Antibodies. (Theorien der Antikörperbildung.) K. Landsteiner.
167 *Serodiagnosis of Syphilis. (Beobachtungen über die Diagnose der Syphilis vermittels der Wassermannschen Reaktion.) J. Stopczanski.
168 Toxic and Non-Toxic Putrefaction in the Intestines. (Studien über Darmfäulnis.) A. Rodella.
169 Phototherapy applied to Rectum and Vagina. (Lichtbehandlung auf rektalem und vaginalem Wege.) A. Foges and A. Jungmann.
170 Disinfection of the Skin. (Zur Technik der Hautdesinfektion.) J. Kratochvil.
171 *Roentgen-Ray Treatment of Goiter. (Zur Röntgenbehandlung des Kropfes.) G. Schwarz.

December 2, No. 48, pp. 1663-1696

172 Climacteric Functional Disturbances of Glands with an Internal Secretion. (Zum klinischen Bilde des Klimakteriums.) A. Gluzinski.
173 Symptomatology of Cardiac Neuroses. (Zur Symptomatologie der Herzneurosen.) L. Braun and A. Fuchs.
174 The Problem of Anaphylaxis. G. Salus.
175 Prophylaxis of Measles in Hospitals. (Schutz der Kinderspitäler gegen Maserninfektion.) N. Berend.
176 Symptoms of Exophthalmic Goiter with Neoplasms in the Thyroid. (Ueber Basedowsymptome bei Schilddrüsenneoplasmen.) I. Löwy.

167. **Serodiagnosis of Syphilis.**—This article gives the experience at Cracow with the Wassermann test applied in 103 cases of various dermatologic affections. It was found that more intense specific treatment was necessary to transform a positive into a negative reaction than was required to banish the manifest symptoms. The question is now to determine whether tabes and paralysis will develop later in persons given treatment on the basis of the seroreaction.

171. **Roentgen Treatment of Goiter.**—Schwarz is director of the Roentgen institute connected with v. Noorden's clinic at Vienna and his experience has taught that ordinary goiter contraindicates Roentgen treatment as a rule, and operative measures should be considered. With exophthalmic goiter, Roentgen treatment should be given a trial for a time, with operative treatment in case it fails to relieve. With severe goiter causing stenosis complicated with exophthalmic goiter, he advises an operation at once, followed by Roentgen exposures.

Zentralblatt für Chirurgie, Leipsic

November 27, XXXV, No. 48, pp. 1641-1680

177 Experimental Occlusion of Mesenteric Blood Vessels and Intestinal Stenosis. (Die experimentelle Verschliessung der Mesenterialblutgefässe und die Ursache einiger Darmstenosen.) G. Bolognesi.

Zentralblatt für Gynäkologie, Leipsic

November 13, XXXIII, No. 47, pp. 1609-1632

178 Extraperitoneal or Transperitoneal Cesarean Section. (Extraperitonealer oder transperitonealer Kaiserschnitt?) P. Mathes.
179 Disinfection of Parturients. (Zur Disinfektion Kreissender.) S. Gottschalk.
180 *Applicatic [illegible] tion during Pregnancy [illegible] Alexander-Adams'schen [illegible] und im Wochenbett.) P. Bröse.

November 27, No. 48, pp. 1634-1664

181 *Retrouterine Fixation of the Round Ligaments. (Neue Methode der intraperitonealen Verkürzung der Ligamenta rotunda.) F. Franke.
182 Cervico-Vaginal Fistula from Abortion. (Zwei Fälle von Mutterhals-Scheidenfisteln bei Abortus.) A. N. Pawlow.

December 4, No. 49, pp. 1665-1696

183 Unfavorable Experiences with Obstetric Epidural Injections. (Wert der epiduralen Injektionen bei den Gebärenden.) M. Tobiaszek.
184 *Gynecologic Examination. (Zur gynäkologischen Untersuchung.) P. Bröse.

180. **Alexander-Adams Operation during Pregnancy.**—Bröse reports three cases in which the retroflexed gravid uterus caused such disturbances that he was compelled to interfere. He shortened the round ligaments by the Alexander-Adams technic without interrupting the pregnancy which continued to natural delivery. In two other cases he performed this operation not long after an abortion, with equally favorable results.

181. **Retrouterine Fixation of the Round Ligaments.**—Franke sutures a loop of the round ligament on each side of the rear uterine wall, drawing it through a slit in the broad

ligament from 1.5 to 3 cm. apart from the uterus and 1 or 2 cm. below the round ligament. He has applied this method in seventeen cases of retroflexion and has entirely abandoned for it the Alexander-Adams technic.

184. **Gynecologic Examination.**—Bröse insists on the necessity for careful examination of the external genitalia as a preliminary to *investigation of the internal*. By this means he has been able to detect gonorrheal infection in the urethra which otherwise he would have overlooked. He emphasizes further the necessity for protecting the hand with a rubber glove to avoid possible infection of self and of other patients afterward. He further declares that if a gonorrheal process is discovered in the urethra or surrounding glands and there is a probability that the infection has not reached the cervix, it is important to refrain from internal examination unless there are compelling reasons for it as otherwise the gonococci may be carried to the cervix.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 9, XXX, No. 134, pp. 1417-1424

185 *Mice in Transmission of Certain Infectious Diseases. (Il topolino e la trasmissione di alcune malattie infettive.) P. Barabaschi.
186 *Experimental Research on Neuroses of the Sympathetic System. S. Licciardi.

November 11, No. 135, pp. 1425-1432

187 *Differentiation of Effusions of Mechanical Origin. (Nuova reazione dei versamenti sierosi d'origine meccanica.) G. Breccia.
188 Galvanism in Treatment of Heart Disease. (La galvanizzazione spino-precordiale nelle cardiopatie.) C. Colombo.

November 14, No. 136, pp. 1433-1448

189 Heart Stimulants. (L'uso dei cardio-cinetici.) F. Battistini.

November 16, No. 137, pp. 1449-1456

190 Maxillary and Frontal Sinusitis. (Studio delle sinusiti mascellari e frontali.) G. Bianchera.
191 *Diaphoresis in Treatment of Nephritis. (La diaforesi termica nella terapia delle nefriti.) C. Colombo.

November 21, No. 139, pp. 1465-1480

192 Operative Treatment by Menge's Method of Retrodisplacement of Uterus. (L'operazione del "Menge" nel trattamento delle retrodeviazioni dell'utero per via laparatomica.) L. A. Oliva.

November 23, No. 140, pp. 1481-1488

193 Significance and Pathogenesis of Glycosuria. N. Dominicis.
194 Glass Bell and Air Pump in Local Treatment of Neurasthenic Sexual Impotency. (La erezione pneumatica del pene nella cura della nevrastenia sessuale.) C. Colombo.

185. **Mice in Transmission of Disease.**—Barabaschi states that he found the pneumococcus, the anthrax bacillus, streptococcus and staphylococcus, alone or associated, in the intestines of a number of mice caught in various private houses, showing that rats and mice are liable to transmit various infections besides the plague. The *Bacillus subtilis* and the *mesentericus* were also found in large numbers, and although the latter is generally regarded as a harmless saprophyte yet the *subtilis* was found in pure culture in a chronic glandular affection reported by Ferrarini. The excreta of the mice, drying and scattering in dust, may transmit infection even without more direct contact. The mice with the pneumococci were caught in houses where there had recently been pneumonia. The gravest danger from this source is incurred by persons working in granaries, etc., where mice abound and their dejecta are scattered over the substances handled.

186. **Neuroses in Sympathetic System.**—Licciardi reports experiments on dogs which confirm his assumption that there is always some organic basis for the alleged neuroses of the sympathetic system.

187. **Differentiating Reaction of Effusions.**—Breccia states that effusions of mechanical origin, that is, resulting from disturbance in the circulation, possess the property of precipitating a silver salt in solution, while in pleuritic and peritonitic effusions there is no precipitation. The technic is similar to that of Axenfeld's reaction.

191. **Diaphoresis by Heat in Treatment of Nephritis.**—Colombo ascribes the benefit from thermic diaphoresis not only to the diversion of the toxins from the kidneys to the skin but to the rest for the kidneys permitted by the vicarious action of the skin. Both in the acute and chronic forms he has always witnessed great relief follow diaphoresis. The patient does not sweat in a hot bath, the water closes the pores, but sweating follows afterward, as the patient lies wrapped in blankets with a cold cloth on his brow. Light baths and Roman baths are especially useful in heart affections and valvular defects. The edema is absorbed and the vasodilatation relieves the high blood pressure.

Policlinico, Rome

November 28, XVI, No. 48, pp. 1509-1540

195 * Surgery of the Common Bile Duct. (Contributo alla chirurgia del coledoco.) V. Gaudiani. Commenced in No. 47.

November, Medical Section, No. 11, pp. 477-524

196 Syndromes Induced by Lesions in Lower Spinal Cord. (Le sindromi dell'epicono midollare, del cono terminale, della coda equina.) N. Sforza.
197 Syphilitic Meningoencephalitis. (Le iniezioni endovenose di sublimato nella sifilide cerebrale.) A. Treroroli.
198 Sudden Thymus Deaths in Adults. (Contributo allo studio delle morti improvvise timiche in adulti.) B. Carlo.

November, Surgical Section, No. 11, pp. 477-520

199 Elastic Fibers in the Bladder and Seminal Vesicles with Prostatic Enlargement. (Ricerche anatomo-patologische sul comportamento delle fibre elastiche nella vescica e nelle vescichette seminali dei prostatici.) G. Razzaboni.
200 Histopathology of Hypertrophied Prostate. E. Savagnone.
201 Surgery of the Ureter. (Sulla ureteroneocistostomia nelle ferite chirurgische dell'uretere.) S. Solieri.
202 Tolerance for Various Kinds of Sugars in Normal and Splenectomized Animals. (Tolleranza per varie specie di zuccheri in animali sani e poi smilzati.) G. Quarta. Commenced in No. 10.

Riforma Medica, Naples

November 15, XXV, No. 46, pp. 1261-1288

203 *Hematologic Diagnosis in Fevers. (Sul valore della emodiagnosi nelle diverse forme di febbricole.) A. Cantani.
204 Skin Tuberculin Reaction in Acute Serofibrinous Pleurisy. (La cutireazione alla tubercolina nei malati di pleurite acuta siero-fibrinosa.) V. Barbieri.

November 22, No. 47, pp. 1289-1316

205 *Experimental and Clinical Study of Radical Treatment of Inguinal Hernia. (Un particolare nella cura radicale dell-'ernia inguinale.) C. Mantelli.
206 Syphilitic Jaundice. (L'ittero sifilitico del periodo secondario.) E. Fenoglietto.

November 29, No. 48, pp. 1317-1344

207 Chemical and Physiologic Research on Extrapulmonary Injection of Oxygen. (Ossidazione e sovrossigenazione extrapolmonare.) F. Sicuriani.

203. **Serodiagnosis in Various Fevers.**—Cantani here reports his experiences and the conclusions therefrom in 300 cases of various fevers in which the blood was subjected to different tests. The agglutinating test proved extremely important for recognition of Malta fever. In 32 febrile tuberculous cases the agglutination for Malta fever proved positive once and it was learned that the patient had had an attack of Malta fever the year before. Examination of the blood will give the clue to many puzzling cases previously differentiated as typhoid or Malta fever. He remarks that it is hard to refrain from accepting without question the diagnosis previously made when the symptoms seem to confirm it, but the discovery of leucocytosis with predominant polynuclears should suggest pus fever. Cultivation of a staphylococcus from the blood, with agglutination of this germ by the patient's own serum, 1 to 1,000, led to the discovery of a small abscess in the prostate in one case of this kind in his experience in which the patient was being treated for typhoid. In one case a slight suppurative process had been determined by the Malta fever germ in the course of Malta fever, which obscured the blood findings. He does not decide in favor of the diagnosis of fever from autointoxication until examination of the blood by every means and other tests has excluded all the other known possible causes.

205. **The Nerves in the Radical Operation for Hernia.**—Mantelli thinks that surgeons are inclined to neglect the nerves in treatment of hernia; they strive to refrain from injuring them but otherwise pay no attention to them. He is convinced that the pains and disturbances sometimes following a herniotomy are due to unsuspected injury of the nerves or neuritis. Examination of 50 patients with bilateral inguinal hernia for which the radical operation was done during 1908 has shown that in every instance in which one or more even of the smaller branches of the nerves were involved in the deep suture neuritis followed, sometimes rapidly healing, in other cases lingering for a time and in others becoming chronic. In one case an ascending neuritis developed, the pain and tenderness in the paravertebral, kidney, inguinal and crural region on that side incapacitating the woman for a year to date. He adds that inclusion of the

nerves, even the minute ones, in the suture might lead to paresis of the muscles innervated by them, and thus explain the tendency to recurrence in certain cases. In conclusion he reviews the anatomic course of the nerves in the region of the most common hernias and the means to refrain from injuring them.

Hospitalstidende, Copenhagen

October 6, LII, No. 40, pp. 1249-1288

208 Treatment of Prolapse of the Uterine Cervix and Pouch of Douglas. (Om Behandling af Prolaps af Collum uteri og Fossa Douglasii.) J. Kaarsberg.

209 *Treatment of Placenta Prævia. E. Hauch. Commenced in No. 39.

October 13, No. 41, pp. 1289-1320

210 *Seroreaction with Human Milk. (Wassermann-Reaktion med Mælk.) O. Thomsen.

October 20, No. 42, pp. 1321-1360

211 Serotherapy in Cerebrospinal Meningitis. C. E. Bloch.

October 27, No. 43, pp. 1361-1392

212 Illusions in Estimating Passage of Time. (Illusioner med Hensyn til Bedömmelsen af Tidsafstande.) K. Pontoppidan.

November 3, No. 44, pp. 1393-1432

213 Gastrointestinal Disturbances from Habitual Swallowing of Air: Aerophagia. F. Vogelius.

November 10, No. 45, pp. 1433-1472

214 Kraurosis Vulvæ. I. P. Hartmann.

215 Inflammation of the Eyes Due to the Toxins of the Gonococcus. (Subconjunctivitis epibulbaris gonorrhoica.) C. F. Heerfordt. Commenced in No. 43.

209. **Treatment of Placenta Prævia.**—Hauch analyzes the experiences at Leopold Meyer's maternity at Copenhagen, comparing the outcome with that of other clinics. The verdict in regard to the various obstetric operative measures is in favor of the inflatable bag in the clinic as being the safest for the child, while exposing the mother to no more danger than with other methods. In general practice version should be given the preference, especially when the child is viable. The bag must be introduced into the ovum or at least into the chorion. The bag must be large enough to insure the passage of the fetus; it is not generally necessary to weight it. The details of the various cases are tabulated for comparison. The presentation did not seem to have much influence. The bag was used in 144 cases with a mortality from anemia of 5.2 per cent.

210. **Serodiagnosis of Syphilis with Milk.**—Thomsen has been applying the Wassermann test to fresh breast milk and has found that positive findings were obtained soon after delivery but then the reaction became negative in many cases. Comparison of the findings in 17 syphilitic and 82 non-syphilitic mothers showed that a positive reaction was obtained from the milk in some of the non-syphilitic women but it was very much weaker than the reaction obtained from the milk of syphilitic parturients.

Ugeskrift for Læger, Copenhagen

October 14, LXXI, No. 41, pp. 1117-1142

216 *Importance of Continuous and Digestive Hypersecretion and Microscopic Retention for Diagnosis of Gastric Ulcer. (Om Betydningen af kontinuerlig og digestiv Hypersekretion og mikroskopisk Retention for Diagnosen af Ulcus ventriculi.) G. Jørgensen.

October 21, No. 42, pp. 1143-1170

217 Internal Ear Disease as Consequence of Middle-Ear Lesions. (Om Labyrintitis som Følge af Mellemørebetændelse.) Schousboe.

November 4, No. 44, pp. 1201-1226

218 *Twenty-six Cases of Cancer in the Chest. (Kliniske Bidrag til Kundskaben om maligne Tumores i Brysthulen.) Israel-Rosenthal. Commenced in No. 43.

216. **Clinical Importance of Gastric Hypersecretion and Microscopic Retention.**—Jørgensen has studied this subject with 68 patients, including 36 with symptoms of gastric ulcer and 14 with mild symptoms on the part of the stomach, frequently accompanied with constipation, and 13 with almost intractable chronic constipation. The finding of a small continuous hypersecretion—10 c.c. secretion at least in the fasting stomach—has no differential import as it is a frequent discovery in patients with symptoms on the part of the digestive tract of various origins. At the same time the discovery of a more or less continuous hypersecretion of constantly more than 30 c.c. is a strong argument in favor of the diagnosis of gastric ulcer, while 100 c.c. of stomach content with an acidity of 80 one hour after a test breakfast speaks in favor of ulcer. If the stomach content is about 65 c.c., with an acidity of 80, this is somewhat of an argument in favor of gastric ulcer but not to be depended on implicitly. Continuous hypersecretion was observed in 83 per cent. of his ulcer cases, 93 per cent. in the second group and in 33 per cent. of the third group. Hypersecretion was thus manifest in 54 of the 68 patients, that is, in 79 per cent. Microscopic retention has no differential import but even slight macroscopic retention indicates some organic gastric derangement. Digestive hypersecretion was evident in 42 per cent. of his 36 cases of ulcer; in 29 per cent. of the 14 cases in the second group, and in 11 per cent. of the 18 in the third group.

218. **Twenty-six Cases of Cancer in the Chest.**—Operative removal was not attempted in any case. Three of the cancers were in children between 5 and 12, and 3 others between the ages of 30 and 40. Among the 17 primary tumors all were sarcomas except 1 and 5 of the 9 secondary cancers. The duration of the affection after the first symptoms was less than six weeks in all the primary cases; the secondary cancers usually proved fatal in one or two months. The temperature was normal throughout in 9 of the 26 cases. He does not include cancers of the esophagus in this review. Seven of the 17 primary and one of the 9 secondary cancers were in well-to-do patients. In one 5-year old boy a mediastinal sarcoma developed with an acute onset and ran its course in five weeks after a trauma, but a cough had been observed a week before the latter. In another case a widow of 42 noticed the first symptoms of secondary malignant pleuritis three weeks after a blow in the back. Among the 12 cases with autopsy there were 2 primary sarcomas in the pleura, 3 in the lungs, 3 in the mediastinum and 3 in the thymus, with 1 primary carcinoma in the mediastinum. The abdominal organs were the seat of metastases in nearly every case, especially the liver. In the 9 secondary cases with autopsy the primary cancer was in the ovary, testicle or breast.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

Jahresbericht über die Fortschritte der inneren Medizin im In- und Auslande. Von Dr. Schreiber in Magdeburg und Dr. Rigler in Leipzig. Bericht über die Jahre 1902 und 1903. II. Band. Pp. 1571. Price, 30 marks. Leipsic: Verlag von Dr. Werner Klinkhardt, 1909.

Jahresbericht über die Fortschritte der inneren Medizin im In- und Auslande. Von Dr. Schreiber in Magdeburg und Dr. Rigler in Leipzig. Bericht über das Jahr 1908. II. Band. Pp. 938. Price, 20 marks. Leipsic: Verlag von Dr. Werner Klinkhart, 1909.

Handbuch der Biochemie des Menschen und der Tiere. Von Prof. Dr. Phil. et med. Carl Oppenheimer in Berlin. Twenty-second and Twenty-third Instalments (in one pamphlet). Pp. 1032. Price 10 marks. Jena: Verlag von Gustav Fischer. 1909.

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The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 3 Chicago, Illinois January 15, 1910

Address

SOME PROBLEMS OF PHARMACOPEIAL REVISION

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON PHARMACOLOGY AND THERAPEUTICS AT THE SIXTIETH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, 1909

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In considering any phase of this subject, it should be remembered that never before have so many and in some respects such diverse interests been involved in the contents of the Pharmacopeia as at present. This has become the standard for importers of drugs, for manufacturers of not only the preparations used in medicine, but for all kinds of specialties, and proprietary medicines, chemicals, and flavoring extracts, for wholesale and retail druggists, and for officials engaged in the enforcement of pure food, drug, and pharmacy laws. It is assuming the character of a great commercial standard and a text-book of analytical chemistry combined, and has already expanded into a work very different from what its founders anticipated.

The purpose of a pharmacopeia and the parts the physician and pharmacist should take in its preparation was formulated as follows more than a hundred years ago by Drs. James Jackson and J. C. Warren in their report to the Massachusetts Medical Society:

> As it is the business of the physician to prescribe, and of the apothecary to prepare medicines, the physicians as a body ought to point out those articles of medicine which they shall ordinarily employ, and the standard preparations of them.[1]

In the course of time the positions have, in some respects, almost changed so that in recent years pharmacists have largely determined what shall go into the Pharmacopeia and are now inclined to criticize the physician, with much justice it must be admitted, for not adhering more closely to it. But in the extensive discussion of this subject the question of how far the Pharmacopeia meets the real present-day needs of the physician has not received much attention. This is the phase of the subject which physicians should be considering at the present time, and especial attention should be given to the means by which they can make their needs and wishes known; for the last few decades they have been very remiss in this respect.

With a large number of the problems involved in the revision of the Pharmacopeia, physicians have but little direct interest and are not qualified even to express an opinion; among these are many relating to chemical and pharmaceutical details. There is little danger that their interests in most of these cases will not be safeguarded in the future as they have been in the past.

There are, however, certain chemical problems in the solution of which medical opinion should prevail. Thus, many of the problems in regard to chloroform and ether, and the requirements as to the optical activity of a few drugs, such as scopolamin, are questions which chemists and pharmacists are not competent to decide. Whether the value of the fluidextract or the tinctures of nux vomica should be judged by the percentage of strychnin or by that of the total alkaloids is largely a medical problem. There is also an increasing demand for physiologically standardized drugs, and for a fuller recognition of antitoxins and vaccines. Unless some of these facts are fully taken into consideration in the revision of the Pharmacopeia, there will inevitably be, in the next few years, a rapid increase in that class of proprietary articles, already on the market, which, although pharmacopeial, are claimed, sometimes with truth, to be better standardized for the physician's use than the Pharmacopeia requires.

It is, however, in the question of the scope of the Pharmacopeia, what it shall and what it shall not contain, that the medical profession is most interested; and, considering the origin and real purpose of the work, physicians should have a very important, even the leading, part in its determination. In the present rapid evolution of the Pharmacopeia as a commercial standard there is danger that the very purpose for which the work was founded and for which it exists will be obscured. The medical profession will probably, sooner or later, insist that only those articles extensively used in the treatment or prevention of disease and the solvents, reagents, or other chemicals absolutely necessary for their preparation or testing, be admitted. There is a belief that some of the solvents and other reagents already contained in the body of the book should be transferred to the appendix or that, inasmuch as the Pharmacopeia never can be made entirely to supplant works on chemistry and other books of standards, some of the information at present given in considerable detail in it could be left for dispensatories, works on pharmacy and foods, encyclopedias, etc. Among the articles with somewhat elaborate descriptions which it has been suggested could be disposed of in some such manner are acetone, benzin, rubber, honey, ordinary water, sugar, several coloring and flavoring agents, as well as some crude drugs not employed as such in medicine. It is argued that if a number of such articles were either left to other standards or transferred to the appendix, with less elaborate descriptions, and if, furthermore, a number of admittedly rarely used drugs were dropped altogether, there would be space, without making the book unwieldy, for many of the more important new drugs. With a certain amount of elimination there would be time for the Committee on Revision to consider more fully the standards for really important articles, and it might be possible to complete the revision in a shorter time; the determination of standards for what are, for the physician, articles of minor importance (such as whisky) often requires as much time and work as does that for drugs which are of the utmost value, or more. Although it is very desirable, or necessary, to have commercial standards for many such articles, these could be provided for in works other than the Pharmacopeia; physicians must look elsewhere for standards for milk, starch-free flour and many other things of far more importance to them than most drugs.

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[1] Wilbert, M. I.: The Coming Revision of the Pharmacopeia of the United States, The Journal A. M. A., Dec 15, 1906, xlvii, 2089.

Still, the question of eliminations is one which should be approached with much caution by the medical profession; that of additions, however, should receive its early and serious consideration. It is entirely unnecessary to point out why it is desirable that all non-secret drugs used by any considerable number of physicians should be included in the Pharmacopeia. Although it may be necessary, for the ultimate good, to exclude some of them for the present, it should not be forgotten the value of the work as a standard is lessened by every such drug excluded. The manner in which a drug is admitted (and especially the name under which it is admitted) is scarcely less important than the admission itself.

These considerations suggest three lines of inquiry which are especially pertinent at the present time: (1) what general classes of drugs, in more or less general use, are not at present in the Pharmacopeia? (2) by what means the more important of these can best be brought to the attention of the Committee on Revision; (3) what general considerations should govern the form and especially the nomenclature under which they are admitted?

In speaking of the drugs in somewhat general use by physicians it is, of course, necessary to exclude entirely from consideration those about which there is the least secrecy. The present condition as regards new drugs is more complex than any with which the Pharmacopeia has ever hitherto had to deal. Most of the drugs which have come into use in the last decade are either patented or have been introduced under proprietary names. To exclude entirely articles of these classes would be to make the Pharmacopeia still less representative of the actual needs of the physician; their inclusion, however, would involve very difficult problems. Many of the recently introduced drugs claimed by the manufacturers or their agents to be definite compounds have been found to be simply mixtures. In a great many other cases new names have been applied to more or less well-known chemical compounds; as a rule these names are objectionable not only because they are proprietary, but because they are frequently unscientific and often misleading.

Nevertheless, many valuable preparations have been introduced and have come into general use under such circumstances. This Association, through the Council on Pharmacy and Chemistry, has examined large numbers of the newer drugs and included in New and Nonofficial Remedies those which are believed to be as represented. Different sections of the Association and other medical organizations are selecting from this book those articles which the members believe to be of most value and which should be considered for inclusion in the Pharmacopeia. When these results and the prescription statistics now being collected by the American Pharmaceutical Association are tabulated and classified, the Committee on Revision will be better informed than at any other time in recent years as to the wishes of the medical profession concerning admissions. No committee desirous of making a Pharmacopeia which will receive the support of the profession could afford to neglect this material. Information collected in this way is a much truer indication of what should be included in the Pharmacopeia, if this is to fulfil the purposes for which it was founded, than would be the statistics of importers and manufacturers, for example, since there is no way of determining what part of the drugs which pass through the hands of the latter is for strictly medicinal and what for technical or purely commercial use. The Pharmacopeia should not become a standard for the latter.

Although, for the reasons already indicated, it may not be feasible to admit all the drugs selected by these medical organizations, the latter are, nevertheless, doing a useful service in calling attention to all the unofficial drugs which they believe to be useful.

The larger number of recently introduced drugs present no inherent difficulties, for the proprietorship applies only to the name. The articles themselves are free and the chief problem is one of nomenclature. Different pharmacopeias have pursued different policies in regard to this. Most have adopted the name under which the drug has become known in medical literature, provided the name has become free; otherwise they have as a rule adopted the true chemical name. Thus we find in most pharmacopeias such names as "phenacetin," "sulphonal," "saccharin," "antipyrin," etc. The United States Pharmacopeia, Eighth Revision, adopted in most cases the true chemical names, or, rather, abbreviations of them; these abbreviated names, however, will readily recall the true name to one somewhat familiar with chemistry. Thus in place of "phenacetin," we find acetphenetidin"; instead of "sulphonal," "sulphonmethane"; in place of "saccharin," "benzosulphinid" (but with "saccharin" as a synonym). The name "antipyrin," a name which in no wise suggests the chemical nature of the substance, has been adopted by the United States as well as by most foreign pharmacopeias; the German, however, has adopted the name "pyrazolonum phenyldimethylicum" and the British that of "phenazonum." There is a greater lack of uniformity in the case of many other names. Thus we find for the same substance "trionalum" in the Austrian and Swedish pharmacopeias, "methylsulphonal" in the German, "sulphonethylmethane" in the United States and the full chemical name "diethylsulphonmethylethylmethanum" in the Swiss. What was formerly official in our Pharmacopeia as "salol" has become "phenylis salicylas" in the eighth revision, while it is in the Swedish and Dutch pharmacopeias as "salicylas phenylicus," as "salolum" in the Swiss and "phenylum salicylicum" in the German, Austrian and Belgian, and so on.

In some cases this lack of uniformity in the naming of the same substance may be the almost inevitable result of differences in the laws of the various countries, but in most cases it is simply the result of each country trying to work out pharmacopeial problems independently. It is a survival of that provincialism in pharmacopeial matters which formerly found its expression in Boston having one and New York another pharmacopeia; or, up to recently, of Great Britain having the London, Dublin, and Edinburgh pharmacopeias. This atmosphere of provincialism pervades not only the nomenclature of new drugs, but that of the entire pharmacopeias, including the strengths of preparations as well as standards for purity, etc.

In marked contrast to this is the condition of the science of medicine as a whole, which the Pharmacopeia is supposed to serve; this has become truly international. Important medical discoveries soon become known throughout the civilized world; the leading medical journals of each country are read in all other countries. A new drug introduced in one country becomes known in a few weeks throughout the world; for a time, as a rule, but a single name is applied to it, and this enters into the permanent medical literature. Then after a few years the pharmacopeias of the various countries adopt, each for itself, a name; these names are often totally unlike, and the state of confusion which ensues is as great as that which occurs when different manufacturers apply different names to the same substance. Some of these specially devised pharmacopeial names may acquire a limited acceptance in their own countries, but they rarely enter the world's literature; most will probably remain literary curiosities. Thus, for instance, "phenazonum" and "pyrazolonum phenyldimethylicum," the British and German official names for antipyrin, do not occur up to the present in the *Index Medicus*.

Although sound arguments may be advanced for all of the new names recently introduced into the United States Pharmacopeia, including, for example, the very important one, that they are the true or close approximations to the true chemical names, and that really well-educated physicians should learn, even at the cost of a little effort, the true names of the drugs they use, yet there is little likelihood that some of them will ever come into general use.

The difficulties involved in making reforms in the present pharmacopeial nomenclature or of preventing confusion in the future are too great for any country to undertake alone successfully; the only possibility of success lies in a comprehensive international agreement. In these days of international congresses and conferences, when medical men from different nations come together to make, for example, international agreements concerning mortality statistics, or to formulate treaties concerning the control of contagious diseases—when botanists, zoologists, anatomists and chemists have established international systems of nomenclature in their sciences—why should not similar action be taken in regard to the Pharmacopeia? It is true that seven years ago there was a conference in Brussels for the unification of the formulas for a few heroic medicines; this was an important step, but unfortunately it has as yet not been followed by another.

Until the pharmacopeias of the world assume a more international character, corresponding to the present international character of medicine, they will fail more and more to represent truly the needs of the medical profession, and there is probably no phase of pharmacopeial revision in which this profession is more vitally interested than this.

That there has been a demand, largely from a commercial or pharmaceutical standpoint, for knowledge concerning foreign pharmacopeias is evidenced by the fact that a number of pharmacopeias have been translated into foreign languages. Thus, as I learned from Mr. Wilbert, the United States Pharmacopeia of 1840 was translated into German; editions of the German Pharmacopeia were translated into English and Spanish. The Japanese Pharmacopeia has been translated into both German and English. The eighth revision of the United States Pharmacopeia has just been translated into Spanish—an action which should aid materially in bringing about cooperation in pharmacopeial matters between the countries of the western hemisphere.

There are numerous other problems of pharmacopeia revision in which the physician is interested. One, for example, is whether the present basis of representation for medical organizations in the convention should not be changed so as to allow of a fuller participation by the different sections of this Association as well as of other organizations of specialists. Other problems would relate to the formation of a permanently active Committee or Commission on Revision, with centrally located headquarters, so that the Pharmacopeia could be revised at more frequent intervals; much of the work now done by the Council on Pharmacy and Chemistry could be done by such a commission. But time does not permit even a brief discussion of such questions.

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Original Articles

THE RADICAL TREATMENT OF EPITHELIOMA OF THE LIP *

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Operative treatment of cancer in any form or location must, in order to obtain the best possible results, be based on certain well-known incidents in the life-history of this form of neoplasm. Since cancer first disseminates by local extension and then usually by infection of the lymphatics before becoming generalized, any successful operative treatment must remove the whole probable field of local extension before the lymphatics are involved, or must include the latter in its scope before generalization has taken place. There being no clinical symptoms which point to the beginning of lymphatic infection, the only safe course is always to include the whole lymphatic system adjacent to any cancer in its operative removal.

Hence the ideal radical operation against cancer must include, first, extensive local removal of the tissues adjacent to the new growth; second, the removal of the associated lymph nodes with the lymph channels connecting them to the tumor; third, the avoidance of any cutting into the removed tissue, and, last, the closure of the operative wound so as to secure immediate union.

These principles have been embodied in the various operations against cancer in different parts of the body with strikingly successful results, but unfortunately have been disregarded by many operators.

In cancer of the breast there are certainly very few surgeons who will admit ever doing a simple amputation except for mere palliation, but I fear that there are still many operators who even during the past year have been guilty of this act of malpractice, and have thus probably condemned their unfortunate patients to a horrible death.

In cancer of the lip proper operative standards have been more slowly recognized even by the best among the profession, and it is only of late years that the necessity of a truly radical operation has been admitted. The reason for this is paradoxical. The argument seems to have been that because cancer of the lip is generally prickle-celled epithelioma, which is slower of growth locally, and even slower in its involvement of the lymphatics, and because on account of these facts some cures resulted from any form of local destruction of the tumor, therefore anything more than local removal or destruction was unnecessary. Because all the conditions were present which would ensure ideal results from radical treatment, the profession said, "What's the use?" and stuck to the old V operation and condemned at least 25 per cent. of the patients to recurrence and death.

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Such an attitude among thinking men can be explained only by the facts that the percentages of nonrecurrence after the V operation compared quite favorably with those after more radical procedures in other regions, this being dependent entirely on the life-history of epithelioma with its late lymphatic involvement. Among another class of the profession scepticism as to the operative cure of cancer in general, ignorance of the exact facts, combined with the simplicity and ease of the V operation to an inexperienced or occasional operator,

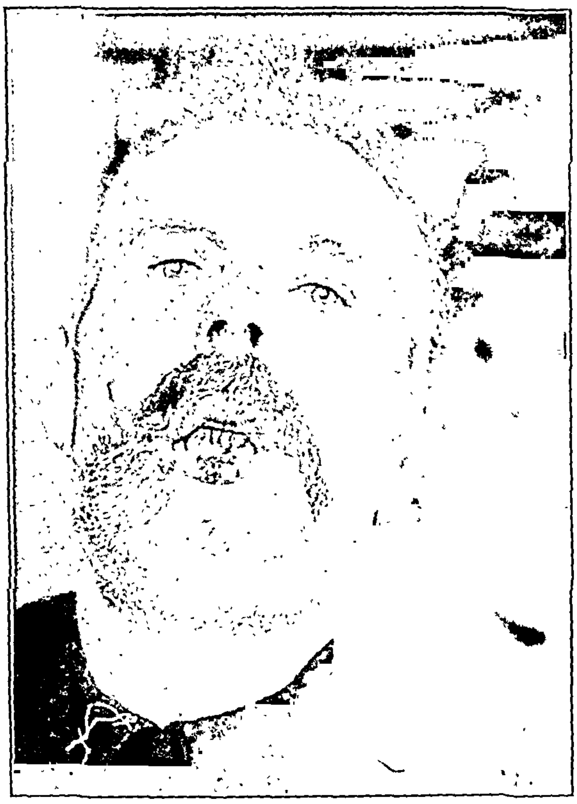

Fig. 1.—A case of typical local and lymphatic recurrence after the V operation.

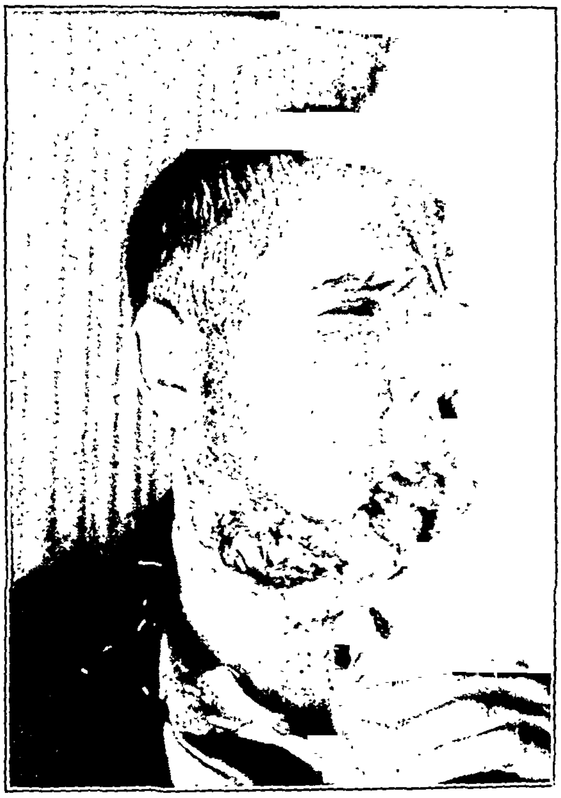

Fig. 2.—Recurrence after V operation in man of 25, showing extreme malignancy at this age.

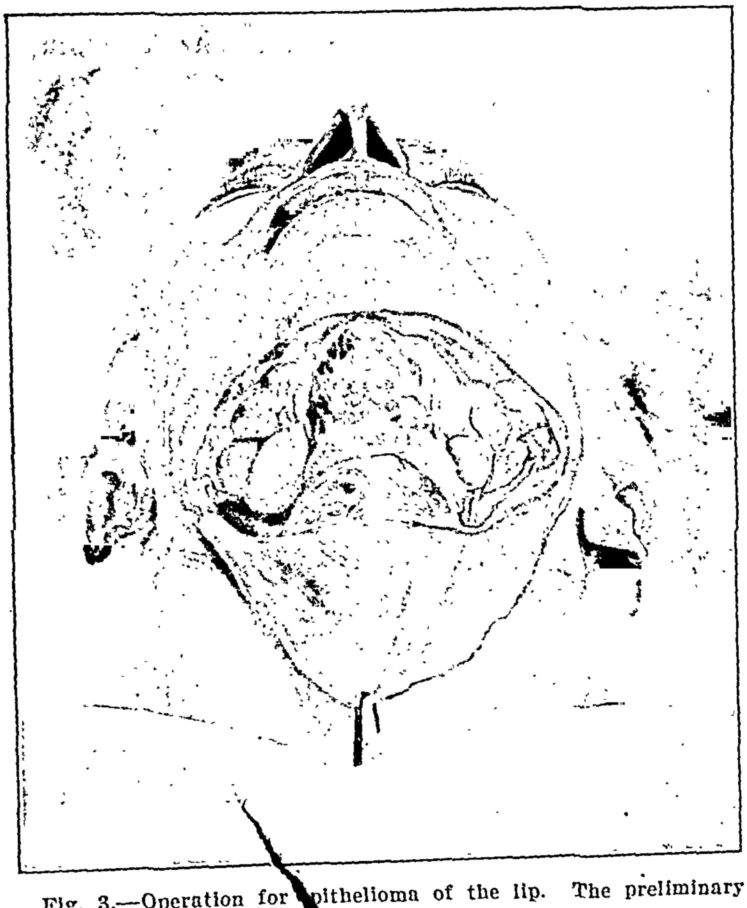

Fig. 3.—Operation for epithelioma of the lip. The preliminary and superficial dissection.

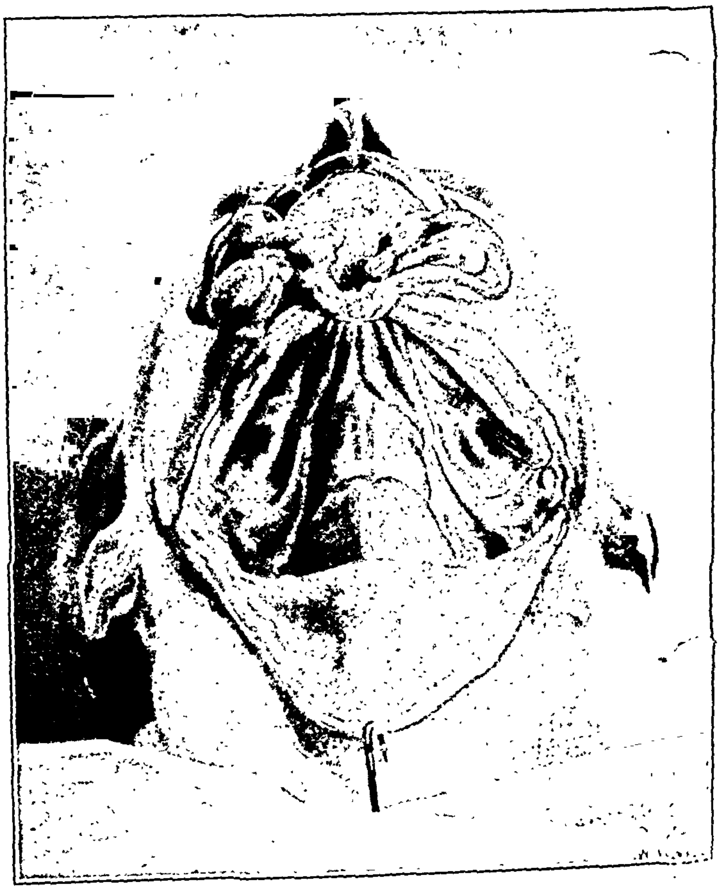

Fig. 4.—Complete dissection of lymphatic and submaxillary glands *en bloc.*

prevented radical treatment. Am I exaggerating when I estimate that nine-tenths of the cancers of the lip treated in this country in the past year have been subjected to purely local treatment of some kind? Am I mistaken in again estimating that not one-third of the members of this representative surgical body regularly do a radical operation in every early case of epithelioma of the lip

At our last meeting in this place I was discussing this question with a prominent member of this Section and he demurred strongly from my plea for radicalism, saying that my views were extreme. Another prominent surgeon said that he had always done the V operation and did not think that he had had 25 per cent. recurrence. Had the 25 per cent. no rights?

Our surgical text-books are a unit in not describing any radical operation for cancer of the lip, and only of late years have added to their description of the V operation the statement that "when the glands are involved they should be removed." Now this is certainly all wrong. No reasonable medical man can deny that the results of a radical operation must be far better than those of simple removal of the tumor, and that his pa-

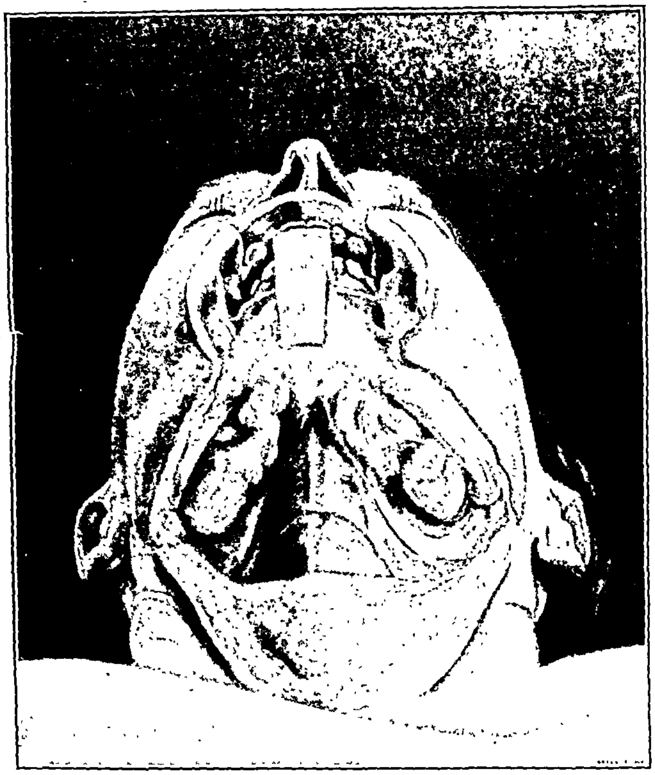

Fig. 5.—Incisions on each side of a small growth, showing the fan-shaped mass of subcutaneous tissue which included lymphatics leading from tumor.

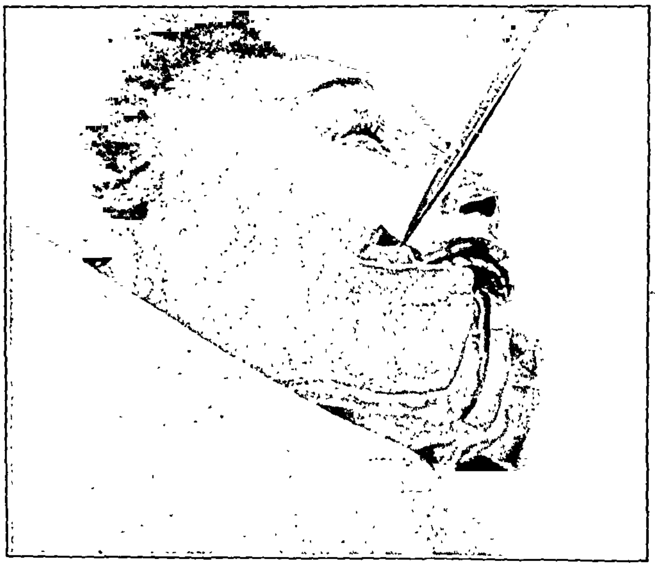

Fig. 6.—The method employed for the enlarging of the mouth by the utilization of a flap of mucous membrane together with the corrective triangle.

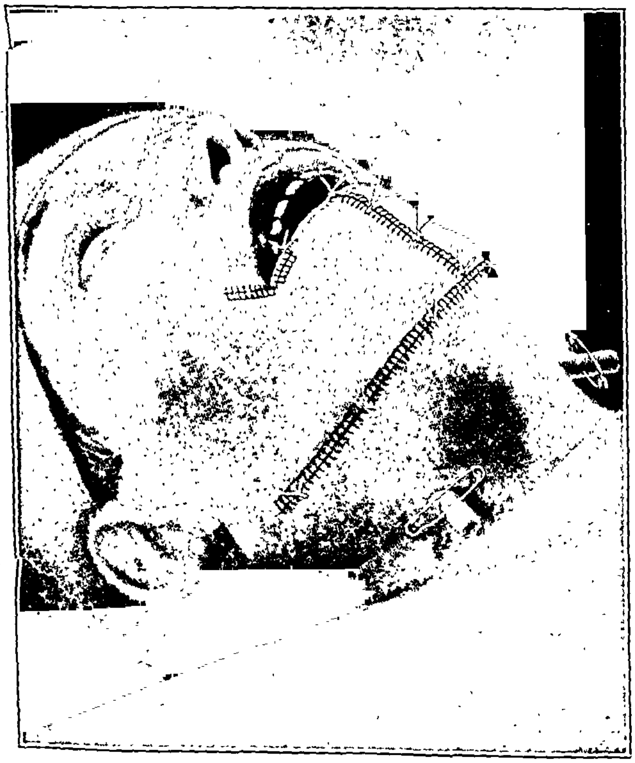

Fig. 7.—Suture of the wound with the provision for drainage of the submaxillary fossæ.

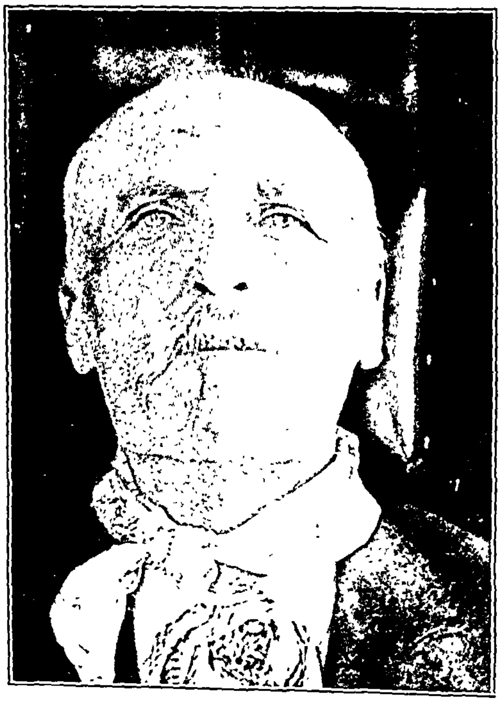

Fig. 8.—Result after removal of one inch of vermilion. Photograph taken immediately after removal of stitches.

tients are entitled to such better results. Certainly surgery against cancer should avail itself of every favorable field to improve its generally discouraging results. I believe thoroughly that every epithelioma of the lip, no matter how small or how apparently early it is seen, should be subjected to radical operation for its removal.

I am unable to give exact statistics in regard to the final results of radical operations for lip cancer, but I believe that recurrences will be less than 10 per cent., and most of these in reasonably early cases will be local and not in the neck, and thus admit of successful operation. I have never known of recurrence after any radical operation done by me in the past eleven years, although some cases are untraceable and may have recurred. Of the very large number of hopeless recurrences which I see, none have given a history of an early radical operation.

My plea is that our patients with cancer are entitled to the very best chance that surgical skill can afford them, and that a radical operation in lip cancer done before extensive lymphatic infection has occurred will have a very low recurrence rate and do much to increase public confidence in the operative cure for cancer.

The exact method and technic of the radical operation is not important as long as the principles already stated are observed, and a number of differing methods are in use by various surgeons, all of which attain the desired results. The operation which I have used for about eleven years is shown in Figures 3 to 7. (These drawings are from the cadaver, the subject fortunately having enlarged lymph nodes from unknown causes. The beauty of the drawings is due to the skill of Mr. Wilson, artist to the anatomic department of the University of Minnesota.) It avoids mouth infection of the neck wound by completing all dissection of the neck before entering the mouth. The first incision extends just below the jaw from one angle to the other and cuts the skin and the platysma muscle, which are then carefully dissected down to the level of the thyroid cartilage. All tissues down to the muscles are then sectioned at this line and a clean dissection is made elevating all loose connective tissue, lymph nodes, etc., in a flap which extends laterally to the great vessels on each side. The facial artery and vein are ligated and the submaxillary glands are loosened and raised in the flap on each side. Incisions are now made at each side of the epithelioma far enough away to include all infiltrated tissue, and these are carried down to the cross section already made. The lateral flaps are now dissected free from the jaw, keeping close to the skin at the lower part to avoid lymphatics, and finally the intervening central mass is loosened from the jaw and removed. This contains the tumor and a fan-shaped mass of skin and the deeper tissues attached to the lymph nodes of the neck, and the submaxillary gland by a loose flap of tissue which contains the connecting lymphatics.

The submaxillary glands should always be removed, not because they are infected in early cases, but because there is regularly a lymph node attached to each which is one of the first to be involved. In cases in which not over three-fourths of an inch of the vermilion edge of the lip has been removed, simple suture of the wound with drainage of the submaxillary fossæ completes the operation. In cases in which the mouth must be extended on account of more extensive removal of the lower lip, the procedure shown in the drawings is convenient. The mouth is broadened by a straight incision outward at either or both angles, and this incision is carried down to but not through the mucous membrane; stitched to the raw surface of the new lip. To avoid the latter is then cut one-half an inch higher and puckering of the upper lip a triangle of skin is taken out of the cheek to allow of the smooth drawing together of the lower lip. The new chin should be sutured to the soft tissues over the lower jaw to exclude mouth fluids from the neck wound. This sometimes fails and there is an offensive suppuration in the wound; and the same accident may occur with a closed mouth, apparently from infection by mouth germs through the cut duct of the submaxillary gland. Final union is always good, and cosmetic results remarkable considering the amount of lower lip often removed. There should be no mortality after this operation, except from accidents due to anesthesia, embolism, etc.

The same operation can be adapted to cases recurrent after V operations or caustic, and when thoroughly done will avoid in many cases further neck involvement.

In these late cases subsequent recurrence is apt to be local, and while it is often entirely inoperable the patient is saved much of the extreme suffering incurred by those dying from lymph node involvement.

I have never seen occasion to attack the lymph nodes along the great vessels as advised by Crile, as the observed cases extending to this field have also had such extensive local involvement as to preclude operation.

There are a few rare cases of cancer of the lip which negate the comparative chronicity of this disease. Such cases are either epithelioma in very young subjects, or carcinoma proper in men up to forty. All such cases personally observed have recurred after V operations or caustic. No opportunity has been afforded to observe the effect of a proper radical operation in such cases.

SUMMARY

1. Local removal of lip cancer should never be done because it is impossible to exclude lymphatic involvement in any case.

2. Radical operation embodying the principles laid down is the only sure way to obtain the best results for our patients, our own reputations, and the credit of the surgical treatment of cancer.

3. Even in recurrent cases much can be done, and these patients should, when the extensive involvement of irremovable soft parts does not preclude, be given the benefit of a carefully executed operation on the same lines.

704 Pillsbury Building.

RADICAL OPERATION IN MAMMARY CANCER *

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In December, 1905, I presented to the Western Surgical and Gynecological Association a new technic for breast amputation in mammary cancer.[1] This technic, after having been previously worked out in the dissecting-room, was first employed clinically in May, 1905. My personal experience, therefore, at the time of its presentation to the surgical public, was limited to but eight cases. In the three years and a half intervening my experience has been increased by a considerable number of further cases in which I have put the method

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] The Journal A. M. A., March 3, 1906, xlvi, 627.

to the fullest possible tests. My own experience has been supplemented by the voluntary testimonials of a very large number of surgeons all over the country. Particularly do I wish to express my indebtedness to Dr. Charles Mayo, whose very kindly endorsement and employment of the technic in his wonderful surgical clinic has introduced the method by demonstration to so many surgeons. My added experience, together with these contributions, has led me to believe it possibly worth while to present this technic again to the surgical profession for further consideration, embodying some modifications of slight character which add to its virtue, and accompanied by a revised set of drawings rather more accurate than the original.

Before proceeding with the operation itself I find it a great advantage first to mark off with a slight scratch stroke of the knife the complete plan of skin incision. This ensures greater certainty in the artistic accuracy of the plastic result, and at the same time warns one against encroachment on dangerous infected tissue in the stress of operative work. I would emphasize at the outset that the portion of the incision which surrounds the breast is always carried beyond the bounds of the breast itself so that all premammary skin is removed with the tumor.

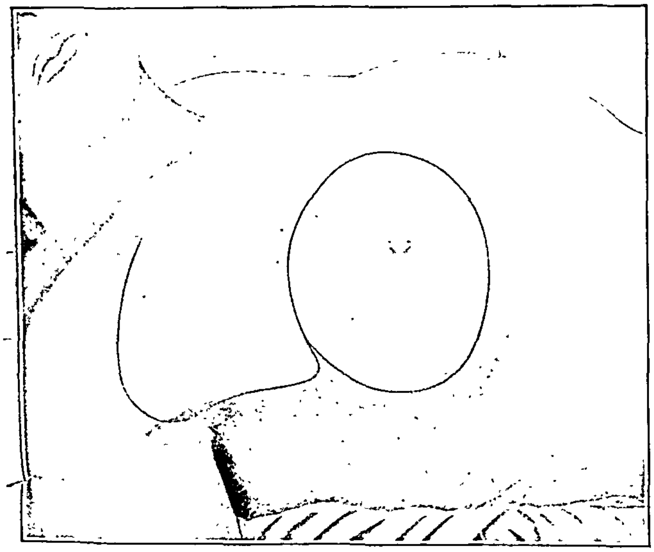

Fig. 1.—Outline of incision, marked with a scratch stroke of the knife. (These drawings are by A. S. Cleaveland.)

The skin incision is begun at a point about one and a half inches below the middle of the clavicle in the natural depression marking the interval between the clavicular origins of the deltoid and pectoralis major muscles. Since to this point in later closure the skin from the floor of the axilla must be brought it can be accurately estimated in advance by pressing the index-finger up beneath the pectoralis major muscle in the axilla and feeling the point in front to which it will reach without undue tension.

From this initial point the incision is carried outward and downward with a slight curvature whose convexity is outward, overlapping the inner margin of the deltoid muscle, to the outer edge of the lower border of the pectoral fold. (I have found that when desired to increase the breadth of the flap, as in cases in which the growth is quite in the outer circumference of the breast, this incision can be carried from two to three fingers' breadth beyond the margin of the deltoid, and yet with the great laxity of the axillary skin the closure on this *line is effected with practically no tension.*) The incision is now curved around the outer edge of the pectoralis insertion and reaches slightly under the edge of the pectoral fold. Along the under margin of this fold it is carried to the chest wall, where it meets the outer circumference of the breast near its lower border. The remaining portion of the incision is made in the form of an ellipse about the breast with its long axis somewhat from above downward and outward, so the outer portion of its circumference practically parallels the descending first incision. In operating, this ascending portion alone is made at the beginning of the operation.

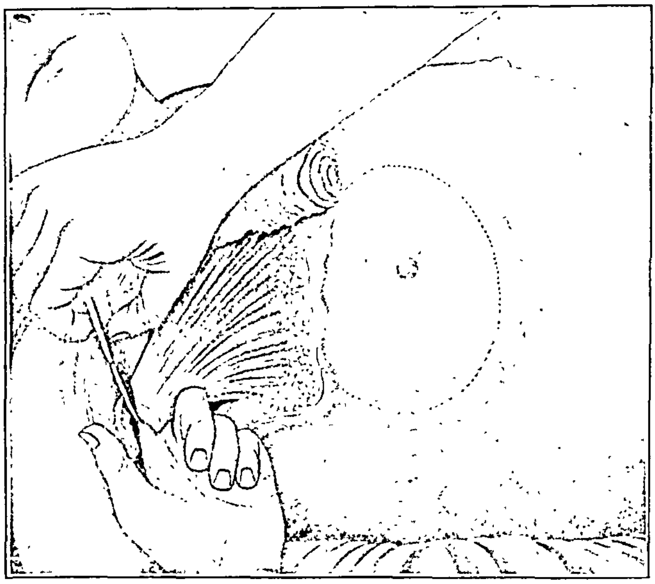

Fig. 2.—Exposure and division of the pectoralis major.

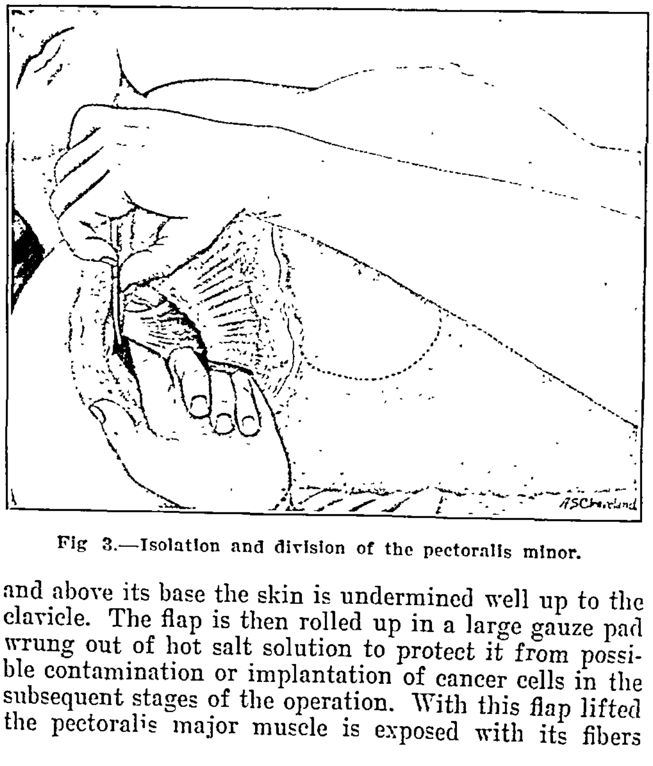

Fig. 3.—Isolation and division of the pectoralis minor.

With the incision thus far carried I have fashioned a quadrilateral flap with its base upward toward the clavicle and free below. This incision is carried through skin and superficial fascia down to the underlying muscles. This flap is now dissected upward from below, and above its base the skin is undermined well up to the clavicle. The flap is then rolled up in a large gauze pad wrung out of hot salt solution to protect it from possible contamination or implantation of cancer cells in the subsequent stages of the operation. With this flap lifted the pectoralis major muscle is exposed with its fibers converging to its tendinous insertion in the humerus. The index-finger of one hand is now shoved up underneath the pectoralis major muscle and brought out again at its upper border, so that the entire pectoralis muscle is thus hooked up on the index-finger, and by blunt dissection separated out to its tendinous insertion.

If one wishes to leave the clavicular portion of the pectoralis muscle, this can easily be accomplished by bringing the finger up through the interval, usually well marked, between the clavicular and sternal portions of the muscle, and thus the clavicular portion can be separated and left in place. With the tendon of the pectoralis muscle thus lifted up, as shown in Figure 2, it is now divided by the scalpel very close to its insertion into the humerus. The muscle immediately retracts toward the chest and exposes, underneath, the pectoralis minor muscle invested in its fascia, which above runs to the clavicle and below spreads out over the chest walls. This can easily be exposed by blunt dissection by the finger, which is now likewise inserted under the fibers of this muscle, and it is isolated as was the pectoralis major. It is also divided (Fig. 3) close to its attachment to the coracoid process of the scapula. As the pectoralis minor, like the pectoralis major, retracts toward the chest, the wound is held apart by retractors or by the fingers of an assistant, and the axillary space is now widely exposed to view from the front. As a rule this exposure can be made without encountering any bleeding vessels which will require clamp or ligature. Likewise we now have a wide exposure of the axilla for thorough dissection, without in any way having touched the breast or made any extensive division of tissues.

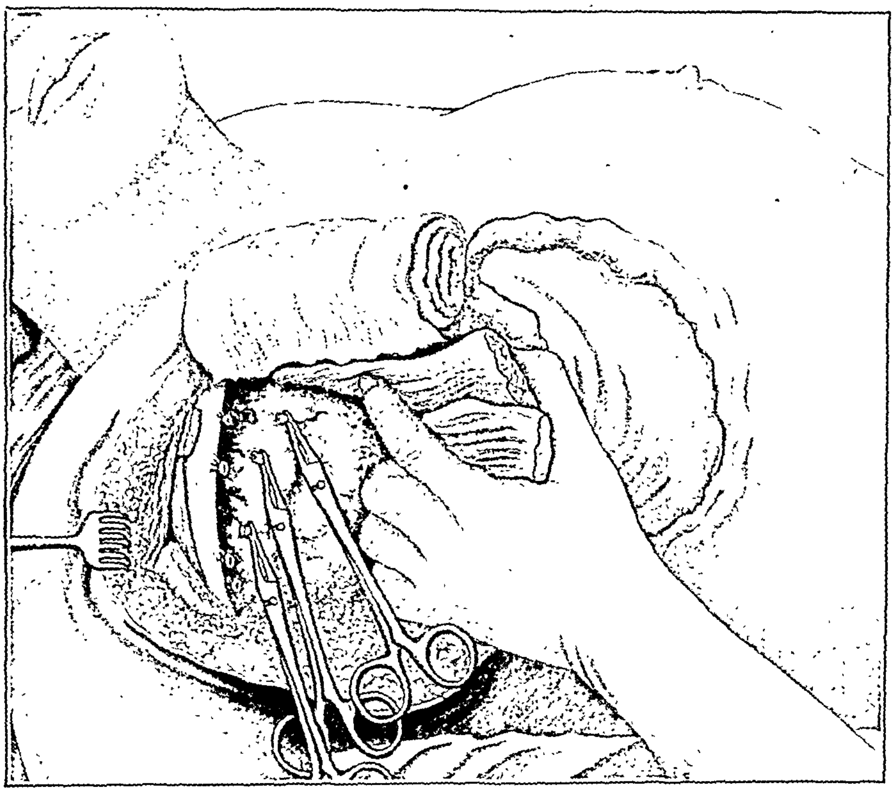

Fig. 4.—Dissection up under the breast and toward the chest.

The axillary vein is now in view, and to its outer side, and parallel to it, an incision is made with the scissors of the fascia which surrounds the vessels. The fascia is now stripped off, usually by blunt dissection and gauze, supplemented by an occasional snipping with scissors. The operator works steadily from without and above downward and inward toward the chest, and clearing fascia, glands, etc., as he goes. In this way the axillary vein and artery are isolated, and the branches supplying the axilla and going on to the chest are made plainly apparent. These vessels are at once double-clamped and divided between clamps. I have usually found it necessary thus to ligate about three or four sets of vessels. Time is saved by *immediately ligating* these vessels and then removing the clamps. Thereafter there will be no trouble with *hemorrhage from the axilla*, except occasionally from little veins in the cellular tissue further back toward the scapula or toward the chest. These incidental vessels, as a rule, will not be more than three or four in number and are usually ligated immediately after clamping. *Beginning thus at the apex and outer border of the axilla*, the fascia and glands are completely cleared by gauze and scissors dissection, working from the vessels inward toward the chest. This dissection should clear the subscapular, serratus magnus and intercostal muscles of all connective tissue and fat cells. As the dissection proceeds the raw surfaces left are covered progressively with hot salt packs both on the proximal and distal wound surfaces, thus carefully guarding against wound contamination. The dissection is now continued usually with gauze, up underneath the pectoralis muscles under the breast and toward the chest. The point of attachment of the pectoralis minor to the ribs is cut from underneath, flush with the ribs and the costal muscles. From underneath the operator now loosens up the pectoralis major to its fixed points of origin from clavicle and sternum. While this is being done the breast is forcibly pulled back so as to expose the deep cavity of the wound. The pectoralis muscle is now severed from beneath, close to its lines of bony attachment, and the perforating branches of the internal mammary which supply the vascularity of the breast are caught as soon as divided as they come through the chest wall (Fig. 5). Usually two or three of these vessels will spurt, but they can be immediately caught with forceps and later tied. After the pectoralis major muscle has been entirely severed from beneath, the breast is allowed to drop back into its normal position, the skin incision is completed, dissected widely in every direction, and the breast and the pectoral muscles underneath are finally clearly removed. Branches of the *mammary artery which are clamped are now tied* and the forceps removed.

Under these circumstances the skin incision practically does not bleed at all, and it will be noticed that at no time during the operation were there more than a dozen clamps on the wound. As a matter of fact, the operation could easily be completed with from one-half dozen to one dozen clamps at the outside. This is made possible by the fact that all vessels are ligated as trunks at their points of origin, instead of dealing with a large number of peripheral branches, as is usual in other operations. The extent of fascia dissected in this operation is the same as in any other thoroughly radical breast amputation. If one wishes to increase the extent of radical removal in accordance with the suggestion of Handley, as we now generally do, this can readily be accomplished by adding a vertical incision from the lowest point of that circumscribing the breast. From this vertical incision the skin and superficial fascia are dissected in all directions, and the deep fascia over the rectus, external oblique, and latissimus dorsi, bounded by the midline internally, the latissimus externally, and a line on the level of the umbilicus below, are removed *en bloc*, together with the glands, breast, etc., embraced in the usual Halstead technic.

The removal of infected tissue now being complete and the wound dry, the next step is the replacing of the flap and the closure of the wound, these also presenting points of distinct originality. The quadrilateral flap of skin and superficial fascia which originally formed the anterior covering of the axilla are now stretched out by tenaculum forceps and transferred inward to cover the defect of the chest wall created by the removal of the skin of the breast (Fig. 6). This flap, which is one of the distinctive features of the operation, will always contract after it has been entirely loosened and will look as though it could be of but little service. A couple of tenaculum forceps at the angles, with probably another pair on either side, will spread it out until it covers a surprising amount of space.

As the flap is now drawn over on to the chest, I usually fix it by attachment to the corresponding points of skin margin, as shown in Figures 6 and 7. Another distinctive point now consists in catching up, with the tenaculum, the margin of the lower portion of the pectoral fold, which represents the integument which formed the original floor of the axilla. The tenaculum on this margin is placed at such a distance from the lowest point of the first vertical line that when drawn upward it will bring this skin point up to the original beginning of the first incision beneath the clavicle. This maneuver brings the loose skin from the floor of the axilla closely up around the axillary vessels and does away entirely with the axilla as a cavity in the subsequent anatomy of the individual. These tenacula likewise are usually clamped and mark these fixed points of coaptation, as seen in Figure 7.

I now place figure-of-eight tension-approximation sutures of silkworm gut at these points to steady our subsequent suturing. These figure-of-eight tension-approximation sutures were first introduced to me by Dr. Charles Mayo and are admirable for such purposes. The remaining portion of the incision may be closed either with interrupted or continuous sutures, as desired; or, as I have frequently done, by the use of subcuticular sutures of silkworm gut. It is most surprising, after this flap has been spread out and approximation properly made, how little tension there will be on the suture line. Should the skin show any pallor suggestive of tension, a number of superficial short incisions through skin alone are made paralleling the wound on flap and outside, allowing escape of venous oozing and thus preventing that venous stasis which more than any other cause may be responsible for gangrene of skin or flap. A stab puncture in the lowest recesses of the wound space behind furnishes opportunity for drainage. In many cases I dispense with drainage entirely.

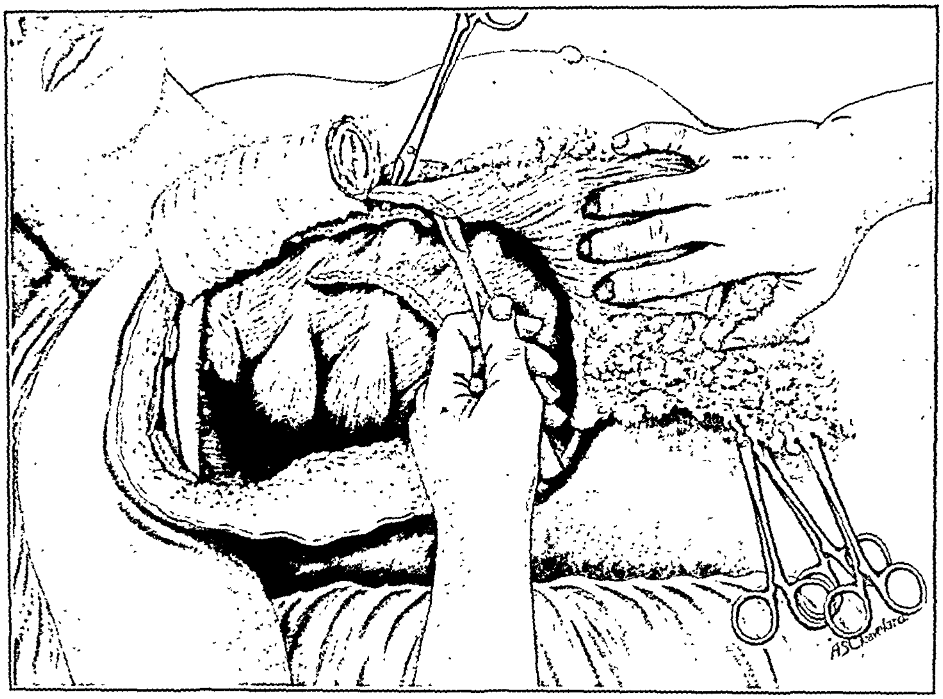

Fig. 5.—Pectoralis muscle severed from beneath, and perforating branch of the internal mammary caught with forceps.

The wound is now covered by large square pads of gauze wrung dry out of hot salt solution, and finally strapped tightly. Separate gauze pads cover the arm portion of the wound and are strapped separately so as to permit free mobility of the arm unrestrained by fixation to the chest. The moist gauze starts capillarity as dry would not, so that the oozing blood and serum are at once taken up by the gauze and carried to the superficial layers. The wound surface is thus kept dry and clean. The strapping also holds the flap close to the chest and obliterates dead spaces.

When the operation is completed (Fig. 8) it will be observed that there is an appearance which has been likened to that of a dipper, with its handle running vertically along the inner border of the arm, paralleling the deltoid, the bowl of the cup being represented by three lines, each at right angles to the other, on the chest wall. There is thus no opportunity for linear contraction interfering with the function or utility of the arm.

This operation will be much better understood by reference to the illustrations which are presented herewith, and its advantages will be much more appreciated on practical trial.

In conclusion, I believe that this method has the following advantages:

1. The drawing of the skin from the floor of the axilla up to the arm does away with the axillary fossa, and thus with the large space which Nature would have to obliterate by formation of scar tissue, with the resultant pressure on the axillary vessels and nerves. In fact, it was in the endeavor to produce this result that the flap was incidentally developed. I had been impressed, as doubtless has every surgeon, with the difficulty in managing the empty fossa axillaris left behind in the older operations. On thin subjects in whom the axillary fat disappears, I had often been impressed with the fact that the pectoral muscle was covered behind as well as in front by skin, and that there was here practically no subcutaneous axillary space. On fleshy patients even it

is easy to push the skin of the axillary floor well up beneath the clavicle. It thus appeared that with a vertical skin incision in front and the skin from the axilla behind brought forward to meet it, I would closely surround the axillary vessels with no waste space for drainage or extensive fibrous tissue obliteration. When this was tried on the cadaver and the axillary skin was drawn up to meet the outer side of my vertical incision in front I found that the original skin covering the pectoralis major muscle at its outer portion was not needed there. Then came the suggestion to slide it inward to the chest where it was needed, and thus the flap. I am, therefore, of the opinion that this method of obliterating the axillary space is possibly the most important point in my entire technic. Its significance, however, has been apparently entirely overlooked by many whose attention has been attracted only by the more obvious and picturesque flap. I have seen not a single case of edema of the arm in my patients since using this technic and none of pain in the distribution of the axillary nerves. Furthermore, there is no possibility of any contraction of skin, which fixes the arm to the chest, and the early and complete restoration of the function of the arm is striking. I therefore put no restraining bandage or splint on the arm at all, but from the outset have it carried simply in a sling and encourage use of the hand and arm as much as possible from the beginning.

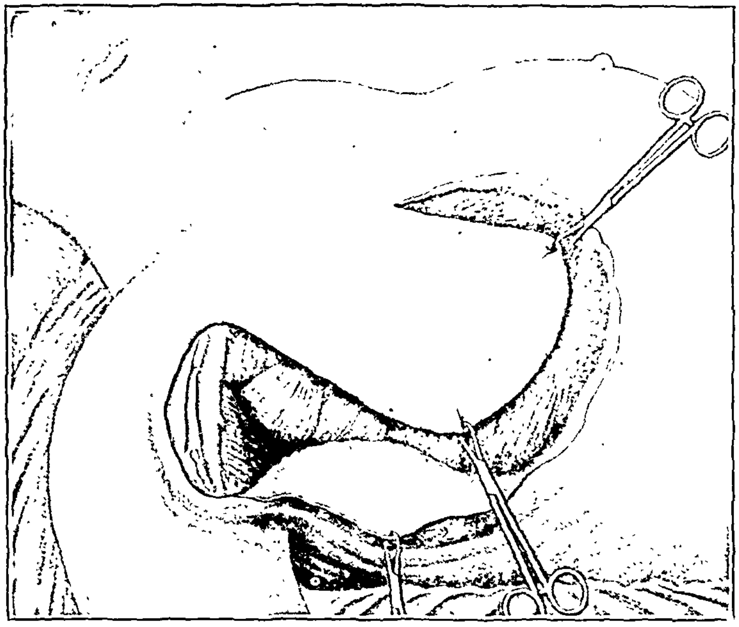

Fig. 6.—Quadrilateral flap of skin and superficial fascia stretched out by tenaculum forceps and transferred inward to cover defect created by removal of skin of breast.

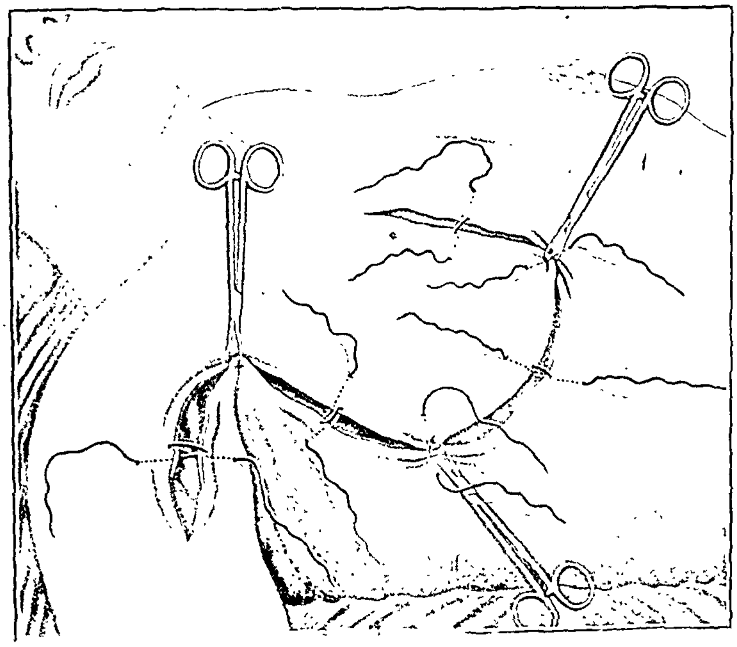

Fig. 7.—Method of insertion of figure-of-eight coaptation sutures.

2. The flap forms a covering for the chest defect, as a rule without any tension, and this almost entirely obviates the necessity of grafting, which is so frequent in other methods. In fact, I have not found any patient operated on by my method who required grafting. It is a curious thing to me to observe that some men seem on general principles to object to any plastic attempt to close a breast wound. Their argument is based on the presumption that in an effort to secure primary closure thoroughness of excision is sacrificed. In my method the entire breast skin is removed. Can any more be required? Handley's argument would even indicate that much less skin sacrifice is necessary. There is certainly no pathologic argument for more. On the other hand, I have found myself and observed others removing more skin than ever before, for the simple reason that it can be removed, and yet the resultant defect can be covered by this flap without the necessity of grafting. I have even removed and seen removed by my surgical colleague in secondary operations on patients previously operated on by others, areas of skin five inches in diameter, and yet covered with primary union by this method and this in cases in which the primary operation had sacrificed at least an ordinary amount of skin. I certainly would not argue any compromise with completeness and thoroughness of removal of infected tissue in cancer cases. There doubtless will be found isolated cases in which neither this or any other one certain method may be applicable, but I do believe that it will prove a distinct advantage in over 95 per cent. of all cases, if operable at all.

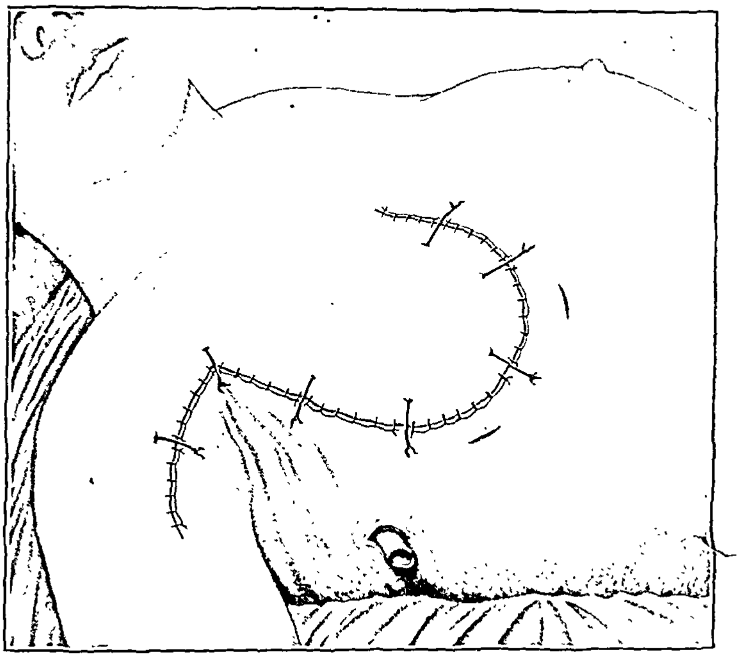

Fig. 8.—Flap sutured in place, with drainage-tube inserted.

Again, Dr. Rodman, in his excellent monograph on "Cancer of the Breast," while most kindly portraying my method in full, has mildly attributed to it two cases of skin recurrence in his hands. In answer to this I would simply remark that in no technic as yet suggested, not excepting the extremely radical one of Dr. Rodman himself, is the skin sacrificed from which my flap is obtained. No one has removed the skin of the original axillary fold. Skin recurrences will occasionally occur after any cancer operation. I have thus far seen but two apparent skin recurrences. In one, reoperation proved it to have really begun in the intercostal fascia and the skin became secondarily involved by contact. Furthermore, while the assumption is not susceptible of exact proof, I am deeply impressed with the view that many of my cases of local recurrence are really cases of implantation recurrence, or local cancer grafts from cancer cells which escaped from cancer tissue during operation, and, becoming implanted in the healthy tissues of a patient susceptible to cancer and obtaining therefrom necessary nutrition and environment, have reproduced themselves. With this belief I strongly urge the painstaking protection of the wound surfaces remaining from the possible implantation of cancer cells, as was indicated in my description of my technic. With this same object I thoroughly flush out and mechanically cleanse all my wounds in cancer cases before closure —the only wounds I do irrigate.

3. The ligation of all vessels at their nearest point of origin does away with the use of a large number of hemostatic forceps, which cause loss of time, to say nothing of the inconvenience of having a large number of instruments in one's way. I have in few instances used more than one dozen forceps in this operation, and can usually do the work with about six. The operation is thus shortened, so that, as a rule, I find that it requires from forty minutes to one hour or thereabouts to complete it. In fact, I have never run beyond an hour, even doing the operation slowly, as I have in most cases, for the purpose of demonstrating this new technic, and I have done the operation in forty minutes.

The most noticeable feature to the onlooker, when the operation is done in the manner described, probably is the marked absence of hemorrhage, so that it can almost be called a bloodless operation.

4. The entire technical portion of the operation is completed before the chest is exposed by removal of the breast; therefore, long exposure of an enormous area of raw chest surface, with the attendant shock, is done away with. As soon, in fact, as the breast is removed the wound is ready to be closed.

425 Argyle Building.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. STEWART AND JACKSON

Dr. H. S. Wieder, Philadelphia: I believe that the work of Handley on the breast and that of Watson-Cheyne have shown that there is local permeation of the cancer downward to the chin in a radial direction and outward toward the borders of the lip, and that, therefore, the V-shaped operation is absolutely contraindicated. If the surgeon is going to take out a V he should turn it in the opposite direction, the base of the V being down and not up. In practically all cases the V-shaped operation is contraindicated unless it includes the radical removal of all the glands in the neck. Like Dr. Stewart, I have never found the submaxillary glands to be involved, but they should be removed, nevertheless, because we frequently find imbedded within these glands small lymph glands which may become carcinomatous, but which cannot be detected by sight or touch.

The early diagnosis of carcinoma does not depend on the diagnosis of the tumor itself, but the detection of abnormal involution, which is the key to the whole situation. As Warren and others have pointed out, in the proliferative type of abnormal involution we have an excessively high percentage of cases of malignant degeneration. It is to this type of abnormal involution that we must devote particular attention, and the microscopist must examine his gross specimen in all directions carefully until he finds slightly indurated portions and these he must examine most painstakingly. In making frozen sections one cannot examine all parts of the tissue, but only a small portion, so that five minutes spent in searching for suspicious portions is five minutes well spent, often avoiding the necessity for a secondary operation. It is a good practice when making general physical examinations of female patients to examine the breasts carefully and by so doing you will be surprised at the number of cases in which you will detect unsuspected abnormal involution. These are the cases which must be watched in order to detect carinoma in its very earliest stages.

Dr. W. H. Welch, Baltimore: I think that pathologists nowadays have more to learn from the surgeon than they can teach him. I think that there is nothing much more remarkable than the contributions which have been made to surgery by the observations on living human beings as contrasted with those to which we are limited, as a rule, on dead material. Pathologists, I think, are much impressed with the risks of cutting out fragments of tumors for microscopic diagnosis. I have received not a few specimens of this character, small pieces of tissue which have been cut off from growths and are said to be for diagnosis. All that material comes from a distance, and I never have any opportunity of examining such pieces of tissue in Baltimore at our hospitals. In this excision there is a great risk of tumor cells being transplanted. In my opinion the cases about which there is doubt in the opinion of the pathologist, as a rule, are not malignant. My experience has been that if a case is one of true malignancy there is not much difficulty in the diagnosis, and I am rather impressed with the view that on the whole the errors are made on the other side, of making a diagnosis of malignancy when it is not justified by the findings. It is of the utmost importance that the pathologist familiarize himself with all the deviations that can occur in normal material within the physiologic limits. In the uterus, particularly, there is a very wide range of deviation from the normal in the utricular glands, which is not, however, in any way significant of malignancy. In the breast, too, there are not a few deviations from the normal which have no significance at all so far as tendency to malignancy is concerned. I would urge all who make these examinations that they acquaint themselves with these deviations from the normal within physiologic limits and also with those conditions which in any way indicate any tendency toward a malignant growth. I think that this is worth emphasizing.

Then, again, the diagnoses which surgeons receive from pathologists in whom they have confidence are often misinterpreted—small matters of misinterpretation of the growth or of nomenclature. When specimens are sent me for diagnosis that have been diagnosed wrongly I generally point out that good pathologists may differ in their nomenclature, and one man may choose to call a specimen an endothelioma that I might prefer to call a carcinoma. That is a matter of difference of opinion entirely, and I would not consider that as an accusation against the value of a microscopic diagnosis in these cases.

Dr. W. W. Grant, Denver: In a paper presented before this section in regard to the radical operation for epithelioma of the mouth or either lip in 1903-4, which was my second contribution to this subject, I spoke of a new method of operating which I know has been adopted by many of the best surgeons of the country who have made themselves familiar with it and prefer it to the older methods of operating. No surgeon who is familiar with the progress of surgery in reference to malignant disease of the lip will to-day use the old V-shaped method, unless, as stated in my paper, the mouth of the patient is very large and the growth very small. I have found that it is infinitely better to take the flap from the cheek and this operation is well illustrated in the latest edition of Dr. Da Costa's work on surgery. I find that it is infinitely better never to take a flap from the chin or the front of the neck.

One thing which has been overlooked by many surgeons is this: One surgeon said to me that he had improved my operation by making incisions from the corners of the mouth if the lip is totally removed. I told him that in this operation as originally described he would find that this was fully and abundantly described so that the mucous membrane would cover the lips entirely and not a single raw surface be left to heal by granulation.

I always remove the glands in the submental triangle and under the jaw whether seemingly involved or not. I always insert a little T-drain (through the submental space) so that the wounds will heal rapidly without soiling. The parts, too, are so vascular that the cutting of large vessels need not be feared. There is never any destruction from sloughing. Dr. Jackson's operation is a beautiful one. I have used it for some time, but all surgeons know that in any radical operation for carcinoma of the breast it is impossible to apply any one method to all cases. In other words, the surgeon is called on and must be ready to apply any modification of an operation in any case of this kind. He must adapt the operation to suit the case and not the case to the operation.

DR. GEORGE W. GUTHRIE, Wilkesbarre, Pa.: I agree that ordinarily the radical operation on the lip is justifiable and consistent with good surgery. Occasionally, however, there are exceptional cases—for example, if the patient be an old man. I happened to have such a case five years ago, the patient was 84 years of age, with a small ulcer of the lip, of comparatively recent origin. Here I did a V-shaped operation under local anesthesia. The man lived over four years without recurrence and died from some intercurrent affection. In exceptional cases in which the mouth is large or the ulcer small and the patient old and decrepit, the V-shaped operation is justifiable.

I learned the Jackson flap method for operations on the breast from Dr. C. H. Mayo and I have used it with gratifying results. Before that I did the Halsted operation, but since using the Jackson method my results have been very gratifying. I have been spared the hard contracted cicatrix and the patient has had a useful arm.

DR. E. S. JUDD, Rochester, Minn.: I want to commend the Jackson operation in cancer of the breast. Almost since Dr. Jackson's early work, after he had done but two of these operations he came to Rochester and demonstrated the technic to us, and ever since that time we have followed it almost to the letter. We believe, however, that one or two modifications which we have made make the operation more simple. Instead of removing the entire pectoralis major muscle we save the upper third, which has a separate blood and nerve supply, so that this portion will functionate as a separate muscle and we get earlier and better use of the arm. At the same time, we do not make the operation any the less radical because the axilla can be exposed just as well with the upper third of the pectoralis major muscle *in situ* as when it is removed. Another point is in the removal of the pectoralis minor muscle. We sever that in the middle and then save the upper half by attaching a number of hemostats to the cut surface and then turn the piece of muscle up over the pectoralis major and use it as a retractor while cleaning out the axilla. We use the Jackson flap incision almost entirely and have often been spared the necessity of skin grafting, and the obliteration of the axillary fold seemed very important. As yet we have not closed the wounds without drainage, but have always drained through two separate points.

In cancer of the lip we agree with Dr. Guthrie in not removing the glands or in doing a very radical operation in very old men who have a very small and a recent epithelioma of the lip, but that would be the only instance in which we would not remove the lymphatics just as early as we remove the axillary glands in cancer of the breast. We would always remove the submaxillary salivary glands simply to make the operation more radical because we do not feel that we can remove all the lymphatics without removing the salivary glands.

DR. MILES F. PORTER, Fort Wayne, Ind.: Regarding carcinoma of the lip, most of us will agree to the composite picture that has been given us by Dr. Stewart and by Drs. Guthrie and Judd. What we are to do with these cases of carcinoma of the breast without tumors? That is: What shall be the method of procedure in a woman of carcinoma age who consults us without a demonstrable tumor, but with a bloody discharge from the breast and the complaint that she has a little pain? This is a serious question with me and I am not sure but that the safest thing to do in these cases would be to do what we do in the cases that present small tumors, namely, take the breast out and have it examined and if it is found to be malignant then do a radical operation. In operation for tumors of the breast it seems to me that the details of no particular technic are so important as are certain principles which should govern us in all operations. In the first place, the removal should be complete, whether one method or another is adopted; second, the operation should not leave the patient crippled, with an arm that she cannot use; and, third, the operation should be done with the least possible degree of shock. Furthermore, there should be relatively no hemorrhage. We accomplish this latter, and that, it seems to me, is one of the most important things in Jackson's technic, by securing the vessels at their origin, and I can confirm his assertion that by doing this operation is practically a bloodless one. My objection to the Jackson operation as it was originally described—and I see that it has been changed materially—was that it left sharp angles in the flap. Sharp angles wherever they occur have a tendency to slough. Now Dr. Jackson has done away with these angles. He has done another thing in the way of applying one of the principles referred to above and that is he puts the flap in close apposition to the hinge in order that the hinge may be free to move. He says that he has avoided the lack of motion which follows so many of these operations. I am impressed with the drawing up of the flap and making it hug the joint. Formerly two or three subcuticular sutures were inserted to hold the axillary tissues and skin in close apposition to the shoulder joint. There is no inhibition in the subsequent movement of the arm. In other words, the securing of the vessels at their origin, the avoidance of angles and the removal of all the diseased tissues are the chief advantages of this operation.

I want to emphasize Dr. Jackson's remark regarding the necessity of skin-grafting. I do not believe that there is one case in twenty that requires skin-grafting, if certain principles are followed in the way of undermining the flaps and in the location of the incisions. In these cases it is not necessary to make an inefficient operation by removing less skin than should be removed if we will plan our incisions and extend the undermining as it should be in order to get proper coaptation. I have sought to do away with drainage. I believe that in the vast majority of cases drainage is entirely unnecessary.

DR. JOHN F. BINNIE, Kansas City, Mo.: In epithelioma of the lip and carcinoma of the breast is a principle underlying both operations and a difference between the two operations required. Every tissue in the body almost seems to adapt itself to a certain extent to its duties. Epithelium which has to do with filth and insults, for example, the epithelium of the tongue and lip and more especially the lymphatics which drain that epithelium become modified so that irritants which would otherwise cause an immense amount of trouble become practically harmless. The tubes leading from that epithelium to the lymph nodes or filters next in order become impervious to a large extent to the poison passing through them. In these cases one need only excise with moderate thoroughness the local disease, because local recurrence is very uncommon. Then remove the lymph nodes next in order which are affected; then the lymph nodes apparently not affected and there is good prospect for recovery. There is no need to pay any attention to the lymph vessels leading from the primary disease to the nodes. How different in the case of the breast! The breast must be excised most thoroughly; every lymph node, all the accessible fat, the lymphatics next in order and the lymph tubes between the primary disease and the lymph nodes must be removed. I believe that it is actually a law that in operating on cancer of the lip or tongue it is absolutely essential to remove the submaxillary glands, because, as Ogston pointed out long ago, that without removing these salivary glands it is impossible to remove all the lymph glands. Since I first heard Jackson describe his operation two years ago I have used no other.

DR. OLIVER C. SMITH, Hartford, Conn.: At the Hartford Hospital, in operating on cancers of breast, throat, mouth or tongue we place the upper part of the body at an elevation of from 45 to 60 degrees, thus diminishing the amount of circulation in the field. We segregate the blood still further by binding the lower extremities at the groin with Martin's elastic bandages applied tight enough to prevent the return circulation. We record the blood-pressure, taken in the arm, at intervals during the operation, and find that it falls usually from 20 to 40 mm. This position and segregation minimizes the hemorrhage, gives nearly a dry field and brings the patient up nearer to the operator. In relation to extending the incision to the mouth in an upward curve, as has been suggested by one speaker, one needs to be careful not to carry this curve too far. In an instance of which I have knowledge the patient wore a goatee following the operation. These upward curves may have affected his disposition pleasantly, as in the speaker's case, but he certainly looked like the devil.

Dr. W. Lemoyne Wills, Los Angeles, Cal.: If there is anything that the surgeon needs to have drilled into him it is anatomy. Surgeons are more apt to ignore the anatomy than their knowledge justifies. We all know how uncomfortable an ill fitting armhole of a coat is and so is a scarred axilla holding the arm down to the chest. We should give this matter considerably more attention. Therefore, Dr. Jackson's paper is a most timely one, and future officers of this section should encourage the presentation of such papers.

Dr. John C. Munro, Boston: Dr. Jackson's principle we have used with the greatest satisfaction. Even though we are extending it as he suggested in his remarks to the modification that Handley suggested yet the principle still lies there in his flap and it has been of great help in carrying out our work.

Dr. Marcell Hartwig, Buffalo, N. Y.: I do not believe that a man will look like the devil if the surgeon transfers a good chunk of the upper lip. In my experience there is no more perfect and beautiful mouth to be made than if the mucocutaneous edge of the upper lip be used, of course, including the supplying artery. If much of the lower lip or all of it has been lost one can make a very nice mouth by cutting horizontally one-half of the side of the upper lip and stretching it toward the center of the lower lip, doing the same on the other side. That gives the patient a good mouth and there is no trouble with hair growing inside the mouth, as I saw in a case in which the late Dr. Post had used the skin of the chin. Has Dr. Jackson ever operated in a case in which the arm was swollen? I would urge pathologists to examine every case of death from other diseases and see whether infection is transmissible through the lymph nodes. We ought to know exactly when the first infection of the glands occurs. I am inclined to believe that it occurs almost instantaneously.

Dr. J. C. Stewart, Minneapolis: In operations for cancer of the breast has it been observed that recurrences have changed their position since the adoption of the Willy Meyer, Jackson and other operations in the axilla? It seems to me that when we did the Halsted operation there were more recurrences in the axilla and that since we began to operate from the axilla there have been more recurrences over the lower portion of the field of operation. That may be a mistaken observation, but it appears to be true, and, if so, it demonstrates that the handling and manipulation of the breast and other cancer tissues during the operation drives the cancer material toward the lymphatics in the direction where the structure was last severed from its connection with the body. It seems to me that there is more danger from the dissemination of cancers by rough handling than by transplantation. Dr. Binnie's observations on the lymphatics would seem of rather theoretical value, as he must admit the passage of cancer cells through them on their way to the nodes and his inability to specify any tissues when the lymph channels are surely free from such cancer cells.

Dr. J. N. Jackson, Kansas City, Mo.: Some years ago in reading a paper on traumatic surgery I said that true conservatism is that which puts life first, then function and then form. That rule should be observed particularly in such conditions as cancer of the breast. The first aim in the diagnosis or treatment of suspicious cases is to know whether the disease is cancer as early as possible, and if it is, beyond any question, get right after it. When we recall that 90 per cent of tumors of the breast are malignant or ultimately become so, there is no excuse for delay in operation. I believe that in doubtful cases the immediate diagnosis by operation should be insisted on in every instance. I further believe, however, that knowing the statistics of the general probabilities, if we are unable to make an absolute diagnosis, the patient should be given the benefit of the doubt as to life and a radical operation should be done. In nine cases out of ten the patient's life is jeopardized by waiting. I know of cases in which conservative work was done and the patient came to me later with a malignant disease which terminated fatally even after radical operation. I would not advocate any operation for cancer which in any way restricts the field of radicalism that gives the patient the best chance for an ultimate recovery. My one argument is that in this operation the removal is as extensive as can be suggested by any operation. If we can preserve life and function we have two elements of conservative surgery, and I believe that my operation gives better function than any other. And, finally, if we can preserve life, form and function this should be done. Thoroughness of surgery should not be sacrificed for the art of surgery, but where art and science can be combined this should be done. I fear that we have gone too much to the scientific side and have overlooked art.

Dr. Grant's method of operation for cancer of the lip escaped my attention until about six months ago and since then I have had two cases in which I have been able to carry out the method. It certainly does what he claims for it, so far as complete removal of the growth and the lymph glands is concerned, and it also gives a beautiful cosmetic effect. It far surpasses any operation for cancer of the lip in thoroughness and final results. An important feature of the operation is the fact that the chin, which is not involved in the disease, is left as a base on which the new lip is reconstructed. It gives a lip which is natural in appearance and does not draw down. Dr. Stewart makes his incision upward when there is opportunity to enlarge the mouth. Dr. Grant says to make the incision downward, and my observation coincides with this. At one operation I had a dispute with a friend as to which direction the incision should take. I did it downward on one side and upward on the other. If the levator muscle is left unopposed it draws the lip up and our patient had a mouth which was rather ludicrous. When the incision is made slightly downward there is equalization of opposing muscles and the mouth is straight and it has a normal contour. That is an important point to bear in mind.

PALATOPHARYNGEAL ADHESIONS

METHODS ADOPTED FOR THEIR RELIEF, WITH THE REPORT OF A NEW OPERATION *

JOHN O. ROE, M.D.
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There is no one malady, not immediately dangerous to life, that so seriously afflicts the person possessing it as adherence of the palate to the pharyngeal wall. When we consider its baneful effects on nearly all the functions of the upper air passages, on respiration, vocalization, hearing, smell, taste and deglutition, and the very disappointing results so frequently attending the attempts at its relief, it is remarkable that operative measures have not long since been devised affording a reasonable certainty of success in such unsatisfactory cases.

Adhesions of the palate or pillars to the posterior pharyngeal wall present a variety of conditions, which may be differentiated as follows:

1. Adhesion of the normal palate or pillar, or both, to an ulcerated pharynx.
2. Adhesion of an ulcerated palate or pillar, or both to a normal pharynx.

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*Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909. Considerations of space compel the abbreviation of this article in The Journal by omitting part of the case reports. The complete article may be found in the *Transactions* of the Section and in the author's reprints.

3. Adhesions of both an ulcerated palate or pillar, or both, to an ulcerated pharynx.
4. Adhesion of one pillar and one side of the palate to the pharynx.
5. Adhesion of the border of the palate to the pharynx except a small opening in the center.
6. Adhesion of the entire soft palate to the pharynx, the one merging imperceptibly into the other.
7. Adhesion with marked cicatricial thickening, contraction, distortion and narrowing of the entire pharynx, or of the entire palate or of both.
8. Association of the latter condition with cicatricial adhesions to the base of the tongue or to the larynx, or both.

Numerous cases are reported illustrating the great variety, both as to extent and location, of these adhesions, from the simple attachment of one pillar or a portion of the palate to the pharynx, to the adherence or growing together of all the different tissues of the nasopharynx and fauces. Among some of these latter cases illustrating the severity of the disturbance that may be caused thereby I mention the following:

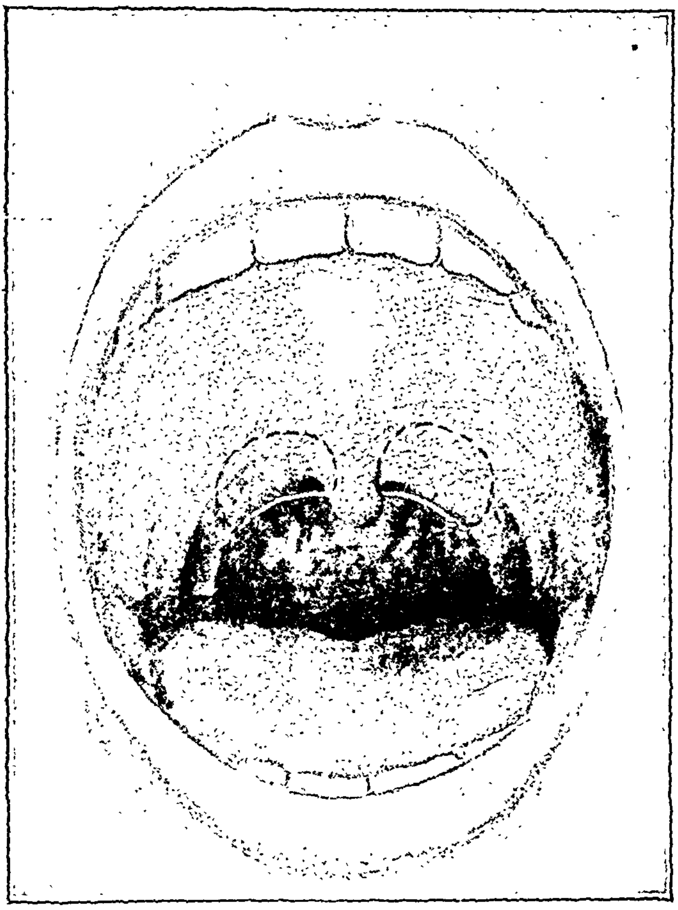

Fig. 1.—Two rings of silver wire, the dotted lines indicating their location, passing out through opening in center under uvula; Cases 1 and 3.

Vansant[1] reports a case of extensive syphilitic cicatricial adhesions of the tongue to the inner surfaces of the gums, to the roof of the mouth, and to the palate and pharyngeal wall. The constriction of the fauces was so great and respiration and deglutition became so extremely difficult that during the years 1889 and 1890 four extensive operations were performed, excising the cicatricial tissue, but to no avail, the cicatricial tissue being replaced and the constriction returning in about six weeks. Tracheotomy was advised but refused, and the patient finally died of inanition and exhaustion.

E. Harrison Griffin[2] reports a case (the patient, a man, aged 44, who had had syphilis twenty years previously) in which the palate was destroyed, the remaining stump being firmly adherent to the pharynx. The nose was destroyed to the level of the face. The patient's mouth was so closed by syphilitic adhesions that only two fingers could be passed with great difficulty, by stretching the mouth to its utmost capacity. He was completely aphonic. In this case there was complete separation of the two pharynges by these membranous and cicatricial adhesions.

Lublinski[3] and Largreuter[4] report cases in which the cicatrix so involved the pillars of the fauces, base of the tongue and soft palate as to cause a ring of tissue just above the larynx that so obstructed respiration as to require tracheotomy. Gerhart[5] reports a case in which a diaphragm formed just above the larynx that would scarcely admit the tip of the finger.

ETIOLOGY

Palatopharyngeal adhesions may be (1) congenital; (2) simple inflammatory—catarrhal; (3) the result of excoriation of the mucous membrane from acrid discharges; (4) local manifestations of the exanthemata; (5) local manifestations of constitutional diseases, as tuberculosis, syphilis, hereditary or acquired, and "so-called" scrofula; (6) traumatism.

Hall[6] reports the case of two children, aged 6 and 11, who had been sent to him by the medical inspector of schools to be operated on for adenoids. No adenoids were found, but in both cases adhesions of the palate to the pharynx were discovered to be the cause of the trouble, which undoubtedly were congenital. These adhesions on being broken up with the finger gave the sensation like that of an adherent placenta.

In one case, that of a child 18 months old, which came under my observation, in consultation, there was complete adherence of the palate associated with complete bony occlusion of the posterior nares.

Contrary to the opinion of Lieven,[7] that there must of necessity have been two ulcerated surfaces opposing each other, Ried[8] observes that simple inflammatory or catarrhal inflammation, in which plastic lymph is thrown out on the surface, may readily cause adherence of the two surfaces. Schech[9] observes that adhesions may follow the superficial erosion from simple desquamation of the epithelium, and Lavrand[10] mentions a case of catarrhal ulceration of the pharynx which was followed by adhesion. This case, which he speaks of as having a scrofulous basis, was in all probability luetic.

The same condition of catarrhal inflammation, however, may be caused by acrid discharges from ulcerated surfaces, from the accessory sinuses, or from other chronic inflammatory conditions. In the case of gummy deposits, which most often take place in the posterior pharyngeal wall, the breaking down of this material and the formation of ulcerated surfaces in this wall with their attendant discharges account for the readiness with which the palate becomes denuded of its epithelium, and, as the ulceration in the pharyngeal wall heals, adherence of the two surfaces takes place. The adherence in these cases is also aided by gravity when the patient is in the recumbent position, and also by the impairment of the action of the pharyngeal dilators, by the inflammatory process, or the luetic poison, as was pointed out by Neumann.[11]

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[1] Vansant: Med. News, Philadelphia, 1894, lxv, 606.
[2] Griffin, E. H.: Med. Rec., New York, 1888, xxxiii, 37.
[3] Lublinski: Berl. klin. Wchnschr., 1883, xx, 361.
[4] Largreuter: Arch. f. klin. Med., 1880, xxvii, 328.
[5] Gerhart: Virchows Arch. f. path. Anat., xxi, 40.
[6] Hall: Brit. Med. Jour., 1909, i, 18.
[7] Lieven: München. med. Wchnschr., 1895, xlii, 489.
[8] Ried: Jenaische Ztschr. f. Med., u Naturw. Leipz., 1864, i, 409
[9] Schech: Deutsch. Arch. f. klin. Med., 1875, xviii, 75.
[10] Lavrand: Jour. Soc. méd. de Lille, 1891, ii, 361.

Local manifestations of the exanthemata may in the same manner produce a condition favoring adherence of the parts. Albertin[12] mentions a case of adhesion of the palate to the posterior wall of the pharynx taking place after variola. MacMahon,[13] Symanowski[14] and Ingals[15] report cases following diphtheria; such a case, presently to be reported, has also come under my observation.

Of the constitutional conditions which may cause palatal adhesions we find cases of lupus and rhinoscleroma reported by Cartaz[16] and Castex;[17] Mikulicz[18] reports cases following leprosy; Dieffenbach[19] and Paul[20] report cases following scrofulous ulceration, and Volkmann[21] has observed it following tuberculous ulceration of the pharynx. This must be rare, as tuberculous ulcerations of the pharynx show but little inclination to heal.

Among the traumatic causes we may mention gunshot wounds, substances accidentally driven through the mouth, laceration of the fauces during surgical operations, and the use of caustics and the galvanocautery. Walb[22] reports the occurrence of marked stenosis of the throat and adhesions of the soft palate in several cases resulting from a too vigorous and unskilful use of the galvanic and Paquelin cautery in the hands of surgeons and throat specialists. Hamilton[23] mentioned a case which came under his observation in which the excessive use of the galvanic cautery caused adhesions of the posterior pillars to the pharyngeal wall.

An interesting case of adhesion of the palate to the pharynx following laceration during a surgical operation came under my observation recently and will presently be described.

By far the largest number of cases, however, are caused by tertiary syphilis. Paul,[20] of Breslau, observed 30 cases of adherent palate; 26 of them were caused by tertiary syphilis and 4 by scrofula. Cartaz[16] is of the opinion that all cases of total adhesion resulting from ulcerative processes are due to syphilis. He collected reports of 39 cases, 32 of which were ascribed to syphilis and 5 to malignant scrofula, which Cartaz believed to be syphilis, and to which all doubtful cases are to be ascribed. According to Schwebisch,[24] syphilitic adhesions are more frequent among men, while those resulting from scrofula are more frequent among women.

CHARACTERISTICS AND RESULTS OF THE LESIONS

The distinctive difference between adhesions due to syphilis and the other causes mentioned is that the former is usually characterized by marked cicatricial contraction, the result of the extensive destruction of tissue; while the adhesions resulting from other conditions are usually of a simple character, as if the parts were glued or had grown together, and are unattended with marked distortion. In all syphilitic cases the central point of the stricture is located where there has been the largest deposit of gummy material, and consequently the greatest amount of ulceration, as shown by the direction of the contraction or distortions of the palate and uvula, when the latter has not been destroyed. When the uvula has been destroyed, the palate coalescing with the pharynx, the former must have been the seat of the primary deposit associated with that in the pharynx. This latter condition, as Scheck[25] observes, is frequently associated with perforation of the palate, which drops back and unites with the pharynx as soon as the opening occurs.

Ulceration followed by adhesions frequently takes place in tissues hidden from view behind the velum; and, as it usually is not attended with a great degree of pain or soreness, the onset of the trouble is often overlooked and the mischief produced before the ulceration has been suspected. Hamilton and Lichtwetz[26] report cases in which the adhesion was revealed only by the rhinoscope and digital examination.

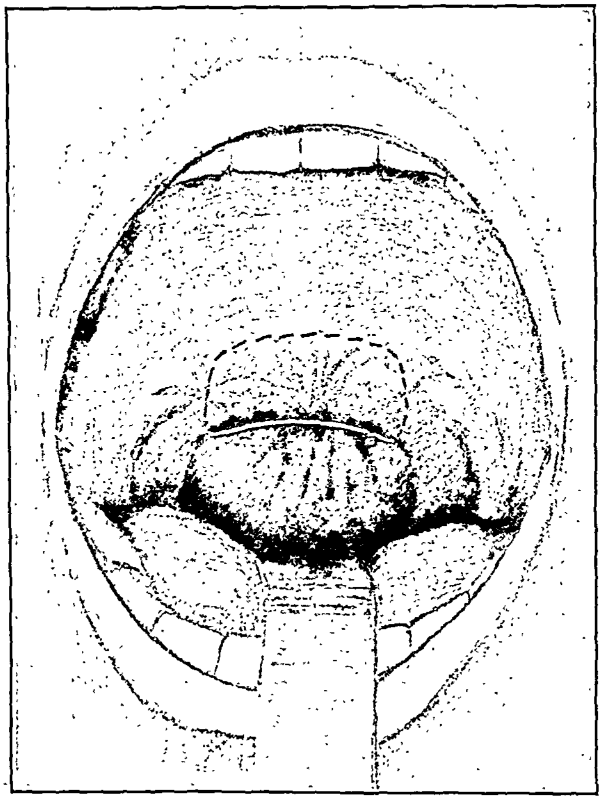

Fig. 2.—Single ring of silver wire, the dotted line indicating its passage above the adhesion behind the palate; Case 2.

Considering the frequency of such erosion, adhesion of the palate would doubtless be of much more frequent occurrence were it not for the movements of the muscles and the motions of the parts during the act of swallowing, speaking, breathing, and more or less the motions of the body, and also the separation of the parts by the mucus discharging from the posterior nares. Paul[20] called attention to this fact and also to the readiness and rapidity with which the adhesions take place when perforation of the palate occurs, doing away with these hindrances to union to a large extent. It is rare that ulceration of both the palate and pharynx take place at the same time, the gummy deposit being located in one or the other of these parts. The location of the deformity and the direction of the contraction, therefore, indicate the primary location of the deposit and the site of the greatest destruction of tissue as observed by Bosworth.[27]

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[11] Neumann: Berl. klin. Wchnschr., February 8, 1892.
[12] Albertin: Monatschr. f. Ohrenh., 1894, p. 196.
[13] MacMahon: Internat. Centralbl. f. Laryngol., 1891, No. 5; Canadian Pract., February 16, 1891.
[14] Symanowski: Vrtljschr. f. d. prakt. Heilk., 1864, lxxxii, 142.
[15] Ingals: Tr. Am. Laryngol. Assn., 1883, p. 188.
[16] Cartaz: Arch. internat. de laryngol., 1893, vi, No. 2.
[17] Castex: Rev. de laryngol., 1892.
[18] Mikulicz and Michelson: Atlas der Krankheiten der Mund- und Rachenhöhle.
[19] Dieffenbach: Operative Chirurgie, Vol. i.
[20] Paul: Arch. f. klin. Chir., vii, 195.
[21] Volkmann: München. med. Wchnschr., 1895, xlii, 489.
[22] Walb: Ztschr. f. Ohrenh., 1889-90, xx, 60.
[23] Hamilton: Montreal Med. Jour., 1895, xxiii, 193.
[24] Schwebisch: Thèse de Paris, 1880.
[25] Scheck: Arch. f. klin. Med., 1876, xvii, 59.
[26] Hamilton: Montreal Med. Jour., 1895, xxiii, 191; Lichwetz: Ann. d. mal. de l'oreille et du larynx, 1894, xx, 815.

Dr. Andrew H. Smith[28] has appropriately likened the process of palatal adhesions to that of burns between fingers. In such cases reunion is certain to take place after liberation and even after cicatrization, if a small granulating space is left at the point where they join, as it will creep along each finger, destroying the newly-formed cicatrix, while adhesion of the opposed raw surfaces will advance at a corresponding pace. The same process is also to be observed *after the liberation of* webbed fingers.

In some cases the adherence of the velum to the pharynx takes place at many and different points, as described by Homolle,[29] instead of being progressive from the sides, as is usually the case, leaving a small opening in the center. In other cases, however, the adherence of the entire palate seems to take place simultaneously when there is an extensive ulceration resulting from the deposits of gummy material in the *different structures* and breaking down at the same time.

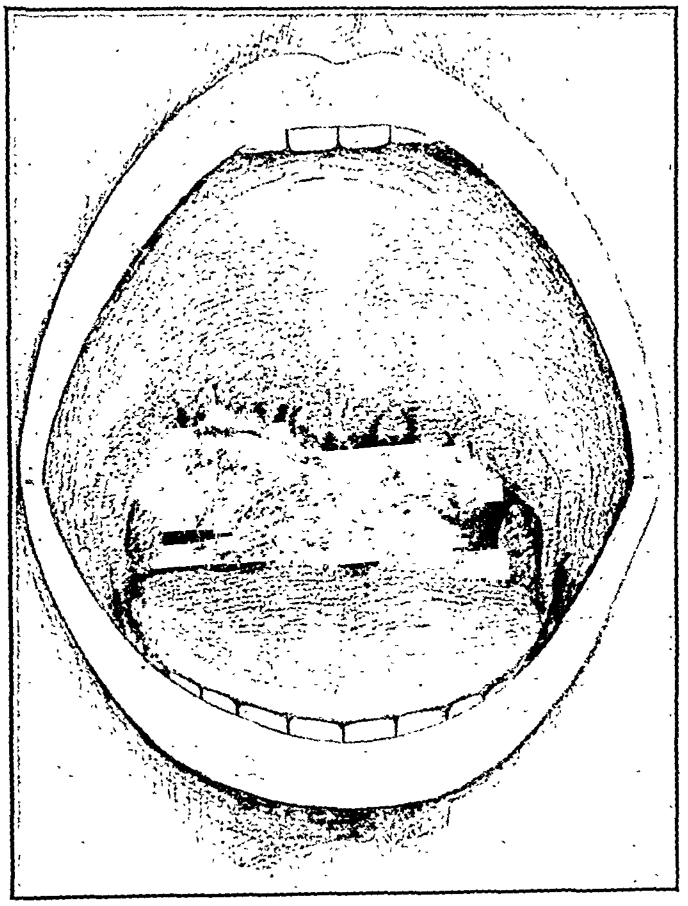

Fig. 3.—Indurated condition of fauces with adhesion of palate to pharynx—tonsils unremoved; Case 4.

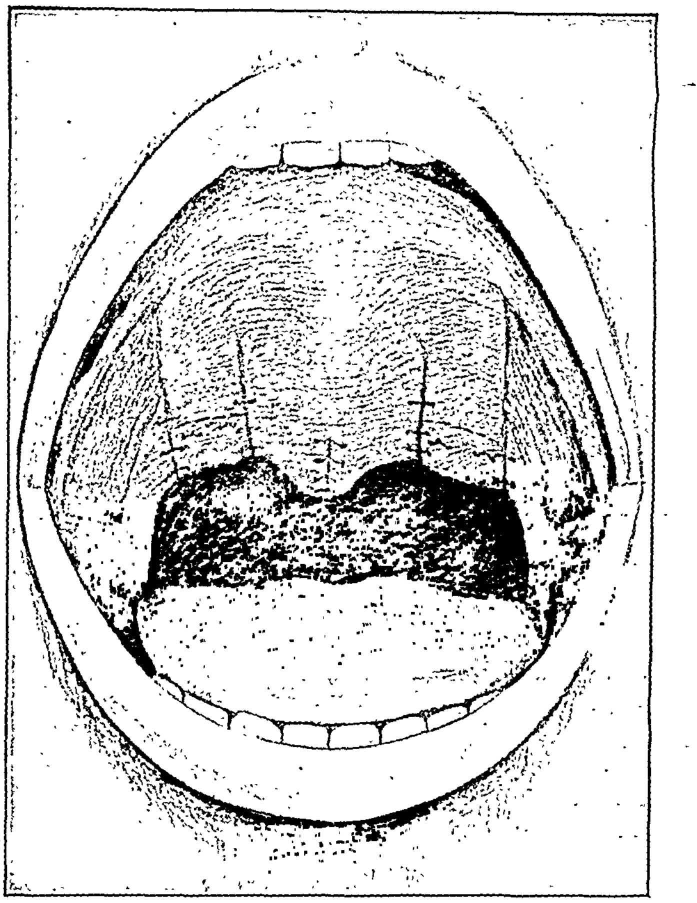

Fig. 4.—Flaps stitched after liberation of palate. Location at sides from which flaps were taken, tonsils removed; Case 4.

The rapidity with which the adhesion takes place toward the close of the healing of the ulceration is sometimes truly surprising, often two or three days only elapsing from the time a free opening is observed until it is found closed.

Complete union of the palate to the pharynx is the exception rather than the rule, for it is rare that a small opening can not be found through which a slender probe can be passed. This coincides with the experience of Bosworth, Rice, Cartaz and some others, and, judging from the imperfect reports of many cases, it seems quite probable that a more careful examination would have revealed a small opening. Of the 30 cases reported by Paul,[30] there was total adherence of the palate in 3 only. Bosworth[27] collected reports of 45 cases, of which 19 were reported as being total, while 26 were partial adhesion of the palate.

Regarding the local disturbances caused by these adhesions Hajek[31] very truly says:

> While the partial adhesion of the soft palate and the back wall of the throat seldom give much trouble, the total closing of the space between the throat and the nose is accompanied by grave consequences. The *impossibility* of breathing through the nose, necessitating therefore continual opening of the mouth and the subsequent dryness of the throat, the inability to blow the nose, the accumulation of secretions in the nasal passages, often becoming fetid; the frequently associated ear troubles and consequent deafness, the sleeplessness and marked effect on the general health make this condition well-nigh unbearable and make on the surgeon the most urgent demands for its relief.

When the closure of the postnasal opening, however, is sufficient to prevent the passage of air and the drainage of the postnasal space, the symptoms are the same as when the closure is complete, the existence of a small opening being, as Bosworth[27] and Cartaz[16] observe, of no practical importance.

The degree to which the ears and hearing become affected depends largely on the extent to which the tubal orifice or the tubal muscles become involved, and is entirely independent of the closure of the postnasal space below. Dunbar Roy[32] reports a case of complete syphilitic occlusion of the postnasal opening in a man 65 years of age, in which the hearing was unaffected, being quite acute for a man of his age. Barbon[33] reports a patient almost totally deaf, in whom the hearing was restored by the liberation of the adhesion and re-establishment of nasal respiration; but on the re-formation of the adhesions and closure of the postnasal opening deafness immediately returned. This Barbon ascribed to the rarefication of the air in the middle ear. In a similar case Martin[33] overcame this rarefication of the air in the middle ear and restored the hearing by establishing an opening through the membrana tympani.

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[27] Bosworth: Diseases of the Nose and Throat, New York, 1892, ii, 280.

[28] Smith, A. H.: Tr. Am. Laryngol. Assn., 1883, p. 187.

[29] Homolle: Thèse de Paris, 1875.

[30] Paul: Arch. f. klin. Chir., vii, 199.

[31] Hajek: Internat. klin. Rundschau, 1892, vi, 1385.

[32] Roy, Dunbar: Alabama Med. Jour., 1903, p. 556.

[33] Arch. internat. de laryngol., 1893, vi, 70.

These cases are accounted for by the fact that the infiltration has caused no obstruction of the Eustachian tube or paralysis of the tubal dilators, as mentioned by Bosworth.[27] In other cases deafness results from the simple closure of the postnasal space and cutting off nasal respiration.

The voice, which is nasal in tone and sometimes almost unintelligible, may occasionally be comparatively unaffected, as in cases reported by Hartmann,[34] Cartaz[35] and Mauriac.[36]

The characteristics of the adhesions differ according to the various causes. Those resulting from syphilitic ulcerations are dense and fibrous, the vascular structures being almost entirely destroyed; while those resulting from purely inflammatory conditions are mainly muscular, containing very little fibrous tissue, or there may be simply an adherence of the mucous surfaces. The adhesions are very variable in thickness and extent, from a simple web or band-like union to a complete union of the entire parts, often extending to the vault and including both nasal passages. In some cases the contraction of the postnasal passage above the adhesion forms a serious barrier to nasal breathing after the adhesions of the palate have been liberated. Rice[37] mentions this fact and also the formation of new connective tissue to replace the destroyed tissue, amounting in some cases to actual hypertrophy, which diminishes the diameter of the pharynx in all directions. This condition, he very truly says, compromises the success of operative measures to a very large degree.

The extent to which the deep muscular structures are altered in these cases of destructive ulceration is illustrated by the results of postmortem examinations which were conducted by Dr. William Turner,[38] of Edinburgh. In these cases he found the deep muscular structures of the postpharyngeal wall almost wholly altered; the muscular fibers of the superior and the upper portion of the middle constrictor muscles were entirely replaced by connective tissue, while the muscles of the palate remained unchanged.

TREATMENT

In the treatment of these conditions it is important, as Lieven[39] states, to delay any operative procedures for the relief of the adhesion until all ulceration or inflammation has completely subsided. Much can be done, however, by timely recognition of the conditions that may cause adhesions by means of both local and constitutional treatment. It is, however, only in the early stages of syphilitic manifestations in the nose and throat, before the tissues have broken down, that constitutional treatment is of avail. In these cases this treatment should be pushed most vigorously. The iodids should at once be given in the largest doses, diminished if necessary rather than to be obliged to increase them, in order to overwhelm and head off the activity of the virus before breaking down of the tissues has taken place. After ulceration has occurred they can only arrest it, and, as Schadle[40] says, "so far as the synechia is concerned, total closure is the result regardless of antisyphilitic treatment."

Previous to the days of laryngoscopy and the rhinoscopic mirror so little was known regarding lesions of the throat that these conditions were little understood; but since that time the etiology and characteristic conditions attending palatal adhesions have been generally well known, although it has been only during the past two decades that any real progress has been made in their successful treatment. The chief difficulty, however, does not reside in the operation of liberating the palate, but in maintaining the opening during the process of healing. Verneuil[41] very aptly says, "Nothing is easier than the liberation of the adhesions, but nothing more difficult than to prevent their reproduction." So discouraging have been the results that Cartaz[42] has questioned the advisability of attempting the unsatisfactory task required in most of these cases.

The various methods employed for dealing with this condition are by (1) mechanical dilators; (2) caustics; (3) permanent obturators; (4) suturing; (5) plastic operations.

The usual method of liberating these adhesions is with the rectangular knife or scissors, a sound or probe being introduced through the nose and the incision made at the point where the palate is made to belly by the pressure of the sound. Dieffenbach[43] used curved scissors and maintained the opening with gauze strips. Later he used charpie tampons as a packing. Hajek[44] adopted a method of repeated incisions and repeated stretching by packing the wound with gauze. The complete liberation of the palate he prolonged over several sittings. Hajek[45] has since (in 1897) constructed a dilator similar to Frankel's nasal speculum, having two blades turned up at the ends for inserting behind the uvula and palate. It is dilated by turning a screw until the opening is stretched to its fullest capacity and the patient is taught to use it himself. Moritz Schmidt[46] used Hajek's method of making incisions on each side of the uvula and stretched the openings with the lead sounds of Lublinski, held in place for one hour daily.

Elsberg[47] separated the parts by means of a blunt staphylorrhaphy knife, then forcibly dilated with the finger, and had the patient use daily a hard rubber palate-retractor to prevent readhesion. Schadle[48] employed a strip of iodoform gauze two inches wide and fifteen inches long, divided throughout, excepting a short portion in the center. The upper ends were passed through the nostrils, respectively, until the crotch came against the posterior extremity of the septum narium: the other ends were brought out through the mouth and tied separately over the upper lip to the upper ends of the tape, sufficiently tight to pull the palate forcibly forward. This was changed daily and worn for several weeks until healing had taken place. The use of rubber bands and ligatures, passed out through the nose and mouth and tied over the jaw, has been adopted by many.

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[34] Hartmann: Versamml. nord-deutsch. Ohrenaerzte in Berlin, April 22, 1889.
[35] Cartaz: Arch. internat. de laryngol., 1893, vi, 81.
[36] Mauriac: La syphilis pharyngo-nasale, Paris, 1877, p. 21.
[37] Rice: Tr. Am. Laryngol. Assn., 1895, p. 110.
[38] Turner, W.: Edinburgh Med. Jour., January, 1860, p. 612.
[39] Lieven: München. med. Wchnschr., 1895, xlii, 489.
[40] Schadle: St. Paul Med. Jour., 1906, viii, 129.
[41] Verneuil: Bull. et mém. soc. de chir., 1876, n. s. ii, 310.
[42] Cartaz: Arch. internat. de laryngol., vi, 66.
[43] Dieffenbach: Operative Chirurgie, i.
[44] Hajek: Internat. klin. Rundschau, 1892, vi, 1386.
[45] Hajek: Allg. Wien. med. Ztg., 1897, xlii, 13.
[46] Schmidt, M.: Krankheiten der oberen Luftwege, 1894.
[47] Rice: Tr. Am. Laryngol. Assn., 1885, p. 112.
[48] Schadle, J. E.: Total Adherent Soft Palate, THE JOURNAL A. M. A., 1894, xxiii, 457.

The readiness with which cicatricial tissue reunites when separated and the persistence with which this scar tissue contracts led Coulson,[49] in 1862, to dissect out the cicatrix, a method which was also employed by Ried[8] in 1864 and Rothenberg[51] in 1876. He first separated the palate above the line of the scar and dissected out the cicatrix with forceps and scalpel. This plan was successfully adopted by Hamilton[52] in the case of a woman aged 32. There had been obstruction of the nose since she was 14 years of age, following ulcerated throat at 12, due to hereditary syphilis. There were no signs of adhesions until by the use of the rhinoscope and by digital examination it was found that about half an inch up, the posterior surface of the palate was completely adherent to the posterior pharyngeal wall. The uvula was first freed and later on the cicatricial tissue was removed *en masse*. The opening was dilated with the finger and with Griffin's dilator and remained patent. The patient's health was immediately greatly improved.

One of the principal things that discouraged free liberation of the adherent palate was the fear of hemorrhage, for the control of which von Dionisio[53] used a rubber ball inflated like a Barnes dilator. To obviate the danger that may attend such hemorrhage T. Gilbert Smith,[54] of London, advised that a preliminary tracheotomy be performed, and even as late as 1903 Tilley[55] reports a case in which he performed tracheotomy before liberating the palate. The small amount of bleeding, however, convinced him of the folly of the procedure, which he said he would not undertake again.

The introduction of the galvanic cautery by Voltolini promised to add an important method in the treatment of these cases, as it not only obviated the danger of hemorrhage but gave hope that contraction would not readily take place after the burning. These hopes, however, proved groundless, for it was found that contraction took place more readily and more firmly after cauterization than after cutting, or, more particularly, after tearing the parts away, as was practiced by Verneuil.[41]

In 1883 Drs. Smith and Delavan[56] brought forward the use of monochloracetic acid in the treatment of this condition. Two years before, Dr. Smith called attention to the peculiarity of the caustic action of monochloracetic acid, in that the eschar remained attached until cicatrization had taken place beneath it. On account of this peculiar action Dr. Delavan applied it to the cut surfaces after the adherent velum had been liberated, and, although the surfaces remained in contact afterward, the healing took place beneath before the eschar separated and the operation proved a success. Schadle[48] also reports the successful use of the acid in a similar case. While the immediate result in these cases was most excellent, the ultimate result of the cases is not stated. In one of the cases which I have to relate the immediate result was most encouraging, but subsequently contraction gradually took place from the sides and progressed toward the center until the opening was finally closed, excepting a small passage in the center.

The uncertainty of all known measures to maintain a free opening after liberation of the palate led different operators to adopt the method of suturing the parts. Dieffenbach[43] passed ligatures through the soft palate, drew it forward as far as possible and held it away from the pharyngeal wall by passing the ligatures out of the mouth and fastening them around the ears. Later he sutured the edges of the incision together after division, but found it an exceedingly difficult procedure, and, as Kummel[57] remarks, for less skilful operators this suturing would hardly be possible. He also turned the cut surface backward on itself and stitched it there to still further prevent adhesions.

A more complicated method of suturing the palate was devised by von Lesser,[58] of Leipsic, in 1879. By his method the free portion of the palate was split parallel to its surface, and the posterior flap, being thus entirely denuded, was brought forward and rolled up under the anterior flap. The anterior flap was then split in the center, and also liberated at the sides, and was turned back over the rolled up posterior flap, so as to cover the denuded membrane; in this way reunion of the velum to the posterior pharyngeal wall was to be prevented.

These methods of suturing together the mucous surfaces of the palate are feasible only in those cases in which the attachment of the palate is confined to its free border, for in cases of more extensive attachment sufficient mucous membrane is not available to cover the denuded surface.

The failure of all these different methods to maintain a permanently free opening in a very large majority of cases, no matter in what manner the palate was liberated, led to the adoption of a permanent mechanical obturator to be worn continuously or held in the opening for a long time until healing was complete and the tendency to contraction overcome by the absorption of the cicatrix or of the plastic exudate.

In order to accomplish this result Cook,[59] in 1873, devised the original plan of suspending a lead plate, made of a suitable size to fit the aperture after the palate had been liberated, behind the veil of the palate, by two strings passed through the nostrils. This the patient wore continuously for six weeks or more, as the case might require, without interfering with deglutition, and it successfully prevented readhesion. Later on hard rubber was substituted for the lead plates by different operators, as von Beregszaszy,[60] Hajek,[61] Barajas,[62] the plates being made to completely fill the aperture and suspended by string passed through the nose and tied in front of the nostrils.

The principal objection to the permanent obturator in the posterior nares was found to be the cutting off of nasal respiration. This objection was obviated by Lucas-Championnière[63] in 1876, who inserted a silver tube, held in place with gold wire fastened to the teeth. Kuhn,[64] in 1892, constructed a fenestrated obturator or tube made of hard rubber, which was held in place by being attached to a dental plate, the plate and tube being constructed of one piece. This method was also successfully adopted by Couetoux[65] in 1893. Kollbrunner,[66] of Strassburg, in 1896, and later on McDougall,[67] in 1903, described the same method as "a new method of dealing with adherent soft palates," without apparently knowing that it had been employed and published before. The only difference in McDougall's device was that he used a metal tube and plate soldered at one end to the patient's tooth-plate.

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[49] Coulson: Lancet, London, 1862, ii, 529.
[51] Rothenberg: Wiener med. Presse, 1876, No. 33.
[52] Hamilton: Montreal Med. Jour., 1895, xxiii, 191.
[53] Von Dionisio: Monatschr. f. Ohrenh., 1892, p. 210.
[54] Smith, T. G.: Brit. Med. Jour, 1880, ii, 588.
[55] Tilley: Jour. Laryngol., Rhinol. and Otol., 1903, n. s. xviii, 271.
[56] Smith and Delavan: Tr. Am. Laryngol. Assn., 1883, p. 187.
[57] Kummel: von Bergman's System of Surgery, i, 902.
[58] Von Lesser: Berl. klin. Wchnschr., No. 23, 1879.
[59] Cook: Med. and Surg. Reporter, Philadelphia, 1873, xxviii, 203.
[60] Von Beregszaszy: Internat. klin. Rundschau, 1888, No. 23.
[61] Hajek: Internat. klin. Rundschau, 1892, vi, 1387.
[62] Barajas: Rev. hebd. de laryngol, 1907, ii, xxvii, 459.
[63] Lucas-Championnière: Ann. d. mal. de l'oreille et du larynx, 1876, p. 88.
[64] Kuhn: Monatschr. f. Ohrenh., 1892, xxvi, 189.
[65] Couetoux: Ann. d. mal. de l'oreille et du larynx., 1893, xix, 856.
[66] Kollbrunner: Strassburg, C. Goeller, 1896.

It is interesting to note that Schadle[68] in 1906, without knowing of the existence of these previous devices, constructed one of hard rubber, the tube and tooth-plate being made of one piece, the same as the one devised by Kuhn.

The permanent relief this device afforded and the little discomfort caused by it is, in many cases, highly gratifying. The only drawbacks are the nasal tone it gives to the voice and, in some cases, the fact that, on swallowing, the food is sometimes forced into the posterior nares, owing to the inability of the patient to close the epipharyngeal space.

The most decided step in advance in the treatment of palatopharyngeal adhesions, however, was taken by Nichols[69] when, in a paper before the New York Academy of Medicine on "A Method of Correcting Adhesions Between the Soft Palate and the Pharyngeal Wall," he proposed the plan of introducing silk sutures at the side of the palate and allowing the sutures to remain *in situ* until a healed channel had taken place around them. The palate is then liberated between these two channels, great care being taken not to wound the outer wall of the channel.

In the discussion following Nicholl's paper, Rice[7] of New York remarked: "I do not think Dr. Nichols is overestimating the value of his method, for it is the first scientifically useful operation yet devised to cover the special requirements."

This method is similar to that proposed by Rudtorffer for the treatment of webbed fingers by securing a healed opening at the base or angle of the adhesion before the fingers are liberated. For this Rudtorffer used lead buttons, and afterward silver or gold rings.

This operation of Nichols is especially adapted to cases in which the adhesions are limited to the border of the velum, it being inapplicable to adhesions high up behind the palate. In three cases I have employed his method with most gratifying results, modifying it only by substituting silver wire for the silk. Figures 1 and 2 illustrate the particular methods I adopted in introducing the silver wire in the different cases. In two cases a double ring or loop was used, one on each side, each one passing out through the central opening, as shown in Figure 1. In the third case but one ring or loop of wire was used, which was so introduced as to pass entirely around the adherent portion in the center, as shown in Figure 2. In a fourth case this method failed, owing to the thickness of the adhesions. In this case I devised a plan of covering the raw surfaces at the outer angles with flaps of mucous membrane taken from the neighboring parts at the sides. These flaps were made of sufficient length to cover the entire extent, vertically, of the liberated surfaces and were stitched in place with sutures passed directly through the palate.

The details are more fully described in the report of the case which follows.

Case 4.—*History.*—A woman, aged 24, was referred to me in May, 1908, for an operation on an adherent palate. The occlusion was complete except for a small opening *in the* center through which a slender silver probe could be passed. This condition was the result of traumatism that had been produced in an attempt to excise the tonsils one year before. The operation had been done under ether, which the patient took very badly. There had also been much bleeding which so obscured the field of operation that the posterior pharyngeal wall was extensively lacerated and the posterior pillars of the fauces, the uvula, and much of the border of the soft palate were cut away.

Treatment.—There was much thickening and induration of the tissues and the adhesion was quite broad. I succeeded, however, with some difficulty in introducing the sutures at the sides, employing two as in the previous cases. At the time I decided to liberate the adhesion I thought I had succeeded in obtaining a healed opening around the wire all the way through, but on operating it proved that, owing to the inflammatory thickening resulting from the operation, the healing had extended but little beyond the mucous membrane. This method was therefore certain to prove a failure and accordingly some other expedient must be resorted to. It was also certain that attempts to prevent reunion of the parts by plates held *in situ* would be futile and that a successful result must be obtained in some other manner. My previous experience in plastic work, however, came to my rescue by suggesting the covering of this raw surface with mucous membrane. This proved in every way successful.

Operation.—As it was necessary to cover but one surface of this opening the anterior or palatal side was most available. In order to secure the mucous membrane for this purpose a broad flap was taken from the side of the palate and inside of the cheek, including sufficient submucous connective tissue to assure its vitality. This flap was then brought down and turned backward and upward around the outer and lower border of the soft palate, and stitched at the sides and the free border through it to the palate along the upper end of the flap that had been turned up behind the palate was stitched to the latter with sutures passed directly through the palate. Complete union of this flap took place and on healing there was no undue contraction at the site of these flaps, nor was there the slightest tendency for the readherence of the soft palate to the pharynx at any point, all of which was very gratifying. I did not attempt to cover the center of the soft palate with mucous membrane, it hung so free from the pharynx that adhesion of the two surfaces could not readily take place. I should also mention that the surfaces from which the flaps had been taken were speedily covered with mucous membrane and soon all traces of them disappeared. The central portion of the palate was much thickened, and this thickened tissue was utilized, by cutting and stitching it into shape, to form a very satisfactory uvula. The levator palati muscles had not been sufficiently injured to impair their function so that by the construction of this new uvula the action of the soft palate, in closing the posterior nares during deglutition and phonation, was completely restored. Figure 3 represents the fauces before the operation. Figure 4 shows the flaps *in situ.*

Postoperative History.—At the time the patient came under my observation the voice was completely nasal and on account of the necessary mouth-breathing, she was gradually losing flesh and strength and had become exceedingly nervous. After the liberation of the palate and complete restoration of nasal respiration, however, she gained rapidly in flesh and strength, and at the end of three months had completely regained the thirty pounds she had lost during the period above described. A recent report from the patient's husband stated that she had had no trouble with the throat since the operation and that she was very well.

This method of dealing with faucial and palatal adhesion is, I believe, entirely new, since I have found no record of its having been done before, and it is radically different from those proposed by Dieffenbach and von Lesser. It is also a method that cannot fail to be successful in all these cases if the operation is carefully and properly done. While the silver suture method is quite satisfactory in many cases, particularly those in which the adhesion is thin and confined to the border of the palate, still it is slow, tedious, and causes the

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67. McDougall: Liverpool Med.-Chir. Jour., 1903, xxiii, 295.
68. Schadle: St. Paul Med. Jour., 1906, viii, 127.
69. Nichols: New York Med. Jour., 1890, li, 219.
73. Rice: New York Med. Jour., 1890, li, 220.

patient some discomfort. It is also lacking in immediate results, so desirable in all surgical operations and in adaptation to all conditions that may be found. On the contrary, with this flap method, no matter how thick or extensive the adhesions may be, it is necessary only to make the flaps of the required size to cover the raw or denuded surface and stitch them carefully in place in order to make the operation in every instance a complete success.

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ABSTRACT OF DISCUSSION

Dr. W. E. Casselberry, Chicago: Palato-pharyngeal adhesions may vary in extent from a slight distortion devoid of symptoms to a state of fusion into a densely cicatricial mass of the edges and fragments of the soft palate, faucial pillars and pharyngeal wall, which have chanced to survive a preceding destructive ulceration. The nasopharynx is all but closed, ending in a conically contracted cul-de-sac from which ribs of scar tissue taper downward to merge into the twisted boundary of the pharynx. It happens that most of my cases have been of this aggravated type, syphilitic in origin, and apparently far worse than those described. These patients constitute an unfortunate class, devoid of nasal drainage and ventilation, defective in speech, smell and taste, and go the rounds, seeking whom they can trust to relieve them and again losing confidence before the usual method of treatment by repeated forcible divulsion, could possibly culminate in permanent relief. To encourage persistency in the divulsion treatment, having first made or enlarged the opening by incision, I have taught the patients to make self-divulsion by the insertion and expansion of a small adenoid forceps, and I recall one case in particular in which, after many months' persistence in self-treatment, a serviceable, permanent opening seemed assured. Dr. Roe merits our gratitude for elaborating the suture method and for the first report of a case successfully treated by an original flap operation. I have been familiar with the suture method for some time, but in my cases, it seemed too unpromising to attempt, the parts being so distorted that one could not tell where to place a suture so that it would be likely to accomplish the desired effect. But, in the class of cases Dr. Roe has illustrated, it certainly is the best operation. With respect to the flap method, Dr. Roe's case having been traumatic and not syphilitic in origin, it scarcely indicates that the flap method will be found generally applicable, although certainly of value whenever tissue from which to form a flap is available nearby.

Dr. W. S. Anderson, Detroit: The only successful method I have ever used, and that was very satisfactory in one serious case in which there was membrane all across the nasopharynx, except one small opening, consisted in passing a suture from the throat up into the nasopharynx and cutting off a pillar of tissue; tying that and waiting until a cicatrix had formed around it and then cutting through. Then I put in another ligature and waited, and again cut off that pillar of tissue. By this method in two months I had separated the membranous portion until I had a good-sized opening into the throat, which has remained permanently open for four or five years. The attempts I have made with other methods have failed.

Dr. C. F. Welty, San Francisco: Six years ago I saw Dr. Jansen do an operation which I will attempt to describe. There was but a small opening left in the naso-pharynx. The attachment below and above was severed by a curved knife on either side; the mucous membrane from the soft palate, posteriorly and anteriorly, was brought together on either side; the denuded portion of the pharyngeal wall was cut so that it could approximate very well. In this particular case there was a very happy result.

Dr. Roy P. Scholz, St. Louis: Does Dr. Roe cover the wound, on the posterior pharyngeal wall, produced in the operation? In giving the causes for palato-pharyngeal stricture, there was no mention made of that form resulting from malignant growths, possibly for the reason that these forms are rarely dealt with except by radical means. In cases in which the tumor has been excised, or in which it still exists, but for some reason or other, radical removal of the tumor can not be undertaken, this method appears to be applicable. Recently a case came under my care, carcinoma of the palate (far advanced) with much infiltration of the connective tissues surrounding it, leading to almost complete separation of the oral from the nasopharynx. The disturbance made by this stricture was so great that relief had to be given, and for this and similar cases I believe this form of operation very suitable. This form of stenosis is not the result of ulceration or adhesion, but of contraction of the connective tissues deposited in the structure of the pharyngeal wall.

Dr. Dunbar Roy, Atlanta: I have had three of these cases of palato-pharyngeal adhesions and my experience agrees with that of Dr. Casselberry. It is almost impossible to get a flap from anywhere with such an amount of cicatricial tissue.

Dr. W. W. Carter, New York: Does Dr. Roe depend entirely on these rings of silver ulcerating through? Is it possible for them to ulcerate through the portion of tissue included within the ring and what reason would he give that this doesn't reunite with the posterior pharyngeal wall?

Dr. G. W. Mitchell, Baltimore: I had a case which gave satisfactory results so far as restoration of the function of hearing was concerned. The patient, a young woman of 20, had complete occlusion of the nasopharynx so that there was no entrance of air through the nose. She had been operated on when nine years old by a New York surgeon who opened the space, and according to her recollection, removed some bone from the back of the nose. The uvula was bound down and adherent on the posterior wall. This was dissected free and then an angular tonsil separator was pushed up behind the velum and rotated from side to side. The opening was then enlarged by divulsion with a curved tonsil scissors. Large rubber drainage tubes were passed through both nostrils into the oropharynx to keep the surfaces separated during healing. Ulceration of septum necessitated its removal, but not before a fairly satisfactory restoration of breathing and hearing.

Dr. J. O. Roe, Rochester: The various causes of palato-pharyngeal adhesions are detailed in my paper but were omitted in the reading because of the time limit. In cases in which there is extensive destruction of tissue and a proportionate amount of contraction of the passages, so long as there is a free opening from the nares down to the adhesion, a suture can be introduced from below, it can be passed from above downward. I have devised a needle for that purpose, mounted on a long slender flexible shaft. The eye of the needle is near the point and is guarded by a shield for protecting the point when the needle is introduced. When the needle is passed down to the adhesion, the shield is drawn back and the needle forced through into the mouth, when the thread is caught and the needle withdrawn, leaving the thread *in situ*. This is repeated on the other side, after which the silver wire is substituted for the thread.

Regarding the plastic flap operation, no matter how much induration there is, if an opening down through the nares can be found for the introduction of a sound to act as a guide for the liberation of the adhesion from below upward, this operation can be performed and is far preferable to the silver wire method in such cases, the latter method being only adapted to cases in which the adhesion is narrow and confined to the border of the palate. When the adhesions are very extensive, forming a mass of cicatricial tissue, I liberate them very freely and sometimes it is advisable to cut away a considerable amount of this cicatricial tissue. Then by making the flap amply large to cover the raw surface and stitching it carefully in place, there need be no fear of not having complete union of the flap in all cases. The flap should be made wide enough to cover about one-half of the surface on each side. The place in the side of the cheek or jaw where it has been found most available for supplying the flap very quickly heals over and is so readily covered by mucous membrane that in a short time scarcely any mark is left, even though the denuded surfaces may have been quite large. The wire does not ulcerate through and there is nothing to cause it to do so. It simply hangs loose in the tissues where introduced until healing has taken place around it. If it should ulcerate through, the operation would be a failure.

SOME GENERAL PRINCIPLES OF DIETETICS, WITH SPECIAL REMARKS ON PROPRIETARY FOODS [*]

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Since the subject which I have been asked to discuss, the general principles of dietetics, is one that, if considered comprehensively, would necessitate an extremely extensive paper, I shall be obliged to confine myself to a few points which seem to me particularly important, especially to teachers, for I know that the latter comprise a large proportion of those present in this Section.

Contrary to the conditions that existed not long ago, when this would have been considered to be well-nigh heresy, it has come in recent years to be an evidence of open-mindedness to dwell on the frequency with which drugs are abused, and as a contrast to the common empiricism in drug therapy to point with gratification to the increasing extent to which the latter is being superseded by rational hygiene and dietetics. The strictures on the use of drugs are occasionally unfair and irrationally sweeping, but I agree that the general trend of this movement is admirable and correct.

Before we adopt too optimistic an attitude in regard to the extent to which the poor use of drugs has been replaced by good methods in diet and hygiene, however, I think that we may do well to determine how largely and how well these latter are actually employed. As a matter of fact, while public hygiene has made great advances and while many valuable details have been added to our knowledge of individual case hygiene and of dietetics, there are many things still to be wished for in the practice of these subjects, some of which, in regard to hygiene, I indicated in a paper that I read before this Section last year. One important reason for the looseness with which they are employed is the fact that the information that we possess in regard to them exists, from a practical standpoint, in very large part in a form that makes it laborious to acquire, so that practitioners can get very little useful working acquaintance with it unless they come gradually to formulate a system for themselves through experience and prolonged study. This means that those who make frequent and confident use of these measures belong to that comparatively small number who have done sufficient study and work in reference to them to permit them to bring into somewhat orderly shape the scattered and fragmentary details learned from various sources and particularly from scattered literature, especially the current literature of the past few years. This is not so true of drugs. It certainly cannot be said that the frequent and confident use of the latter is confined to a few. I need not go into the question whether their less frequent use might not be an advantage, but I may seriously say that many practitioners do actually make skilful use of drugs and that among earnest and intelligent men the distinctions as to skill in this regard are chiefly dependent on differences in personal wisdom and breadth of knowledge rather than on differences in the principles that they apply in using drugs. Be the errors in the customary use of drugs what they may, I think that the intelligent man either possesses or knows how to obtain logical reasons for making his choice in drugs, and the errors that are made with them are dependent more frequently on a widespread habit of using empirical faith than on a lack of means of reaching a rational decision. With hygiene and diet, however, there is very commonly an actual inability to reach a rational preliminary decision as to what general line should be followed.

I have had some interest in learning with what degree of freedom and ease a large number of practitioners, especially recent graduates who have modern training, make use of dietetic measures. I think I am right in saying that a large majority of them believe—and, I imagine, believe rightly—that so far as they are themselves concerned they can accomplish much more with drugs than with diet even in those cases in which they recognize the especial suitability of dietetics. The reason for this is, I think, apparent. They have the means of forming an intelligent judgment in a large proportion of instances regarding the use of any particular drug, while in dietetics, aside from a few conditions such as diabetes, in which specific things can be stated, their knowledge usually consists, on the one hand, of some physiologic facts which have not been presented to them in such a way as to adjust them very clearly to clinical procedures, and, on the other hand, of a more or less considerable mass of practical details which have usually been presented to them almost purely as arbitrary measures and their trend not very well adjusted to the physiologic facts. A decision regarding diet is, therefore, in actual practice usually made in a much more empirical manner than is one in regard to drugs, and it is correspondingly the more likely to be incorrect. Indeed, in dealing with advanced students or even with practitioners who have had no special training in dietetics, I find that they are likely to be unable to give any regulations that could not be equally well or better given by a wise housewife; and the reasons for the regulations that they do give are generally not at all clear, while on the other hand they do very frequently know why they order any particular drug.

The first point to get fixed in our minds, it appears to me, is that, except in rare instances, of which a conspicuous example is diabetes, we do not diet any particular disease by specific means, but we diet disturbances of function which are common to many diseases; that is we employ diet just as we do most drugs. We may often, for example, wisely use precisely the same diet in gastritis, in some stages of gastric ulcer, in some nervous disturbances of the stomach and in various other disorders, since our principle of action here is simply to choose foods that are mechanically, chemically and physiologically unirritating and that do not stimulate the functional activity of the stomach. A common method of writing text-books is simply to describe a special list of articles as especially suitable in each of these conditions. This is, to my mind, quite as irrational a method of teaching as to recommend a particular set of drugs in a particular disease as if they had some especial specific effect in that disease. The rational way of prescribing a diet in these conditions, it appears to me, is to decide through common sense and common knowledge of the physical characters of foods which would be mechanically irritating and which would probably be unirritating in the case at hand and what manner of preparation, if any, would help to avoid this; and to determine which are chemically and physiologically suitable through direct application of the very valuable investigations, such as those done by the Pawlow school particularly, and by Cannon in this country, which have so largely aided rational dietetics; those investigations, that is, that have taught us the influence of protein, fat and carbohydrate variety, but even this is in most cases unnecessary—and more than this these foods do not accomplish.

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[*] Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

So-called beef extracts and the like I need not touch on further than to point out that, as was shown in a recent bulletin of the Department of Agriculture, most of them have scarcely any food-value. Many of them are essentially devoid of all food-value and practically all are not "beef extracts" or "meat juice" at all. These, more than the other proprietary foods even, have been used with an enormously exaggerated idea of their value, and have done a corresponding amount of harm.

Some manufacturers of these and of the other preparations mentioned evidently believe the statements that they put forth in advertisements. Others quite as clearly know better, but make the statements purely to acquire money. It is a sad commentary on the knowledge of dietetics possessed by many members of our profession that they have so freely accepted these statements and then, with their minds fixed in favor of some of these substances, believe that they have seen clinical results that are absolutely impossible. When one attempts to point out to them facts that are as simple as that two and two make four and not forty, one often meets with the reply, quoted from the exploiters, that because of the peculiar manner of preparation or some peculiar composition or what not of the foods, they are especially nutritious and not to be judged by ordinary standards. This is a mere play on either ignorance or unscientific fancy. There is no basis at all for such statements in many instances; and while at most the manner of preparation and the like may give them a very small fraction of superiority over an equal amount of unprepared food, it is only a small fraction. On the basis of this very slight advantage, it is claimed usually that they have anywhere from two to a thousand times their nutritive value; sometimes even more than a thousand—an infinite number, indeed, for some of them are, so far as we know, devoid of any nutritive value. And yet some of the latter have been used quite as freely as some that have value, simply because they have been well advertised.

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PROPRIETARY AND PREDIGESTED FOODS FROM THE STANDPOINT OF THE PEDIATRIST *

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The name of the proprietary infants' foods is legion. They are like the rats in Bishop Hatto's tower; "by thousands they come and by myriads and more." No one can remember the names of more than a fraction of them. Many are widely used throughout the civilized world; others have merely a local vogue. We may well seek an answer to the question, What has brought about the general employment of these substances?

Undoubtedly many factors have been operative. One of the chief of these has been the ignorance of the great bulk of the medical profession in regard to the artificial feeding of infants. It was for years and by many considered as a subject little deserving of the serious attention of a trained physician, and the amount of exact knowledge, until comparatively recent years, was pitifully small.

With time came enlightenment but bewildering complexity. With the development of the percentage method of infant-feeding appeared a great number of complicated algebraic formulas by means of which the required amount of the various ingredients, cream, milk and sugar, were to be calculated, a separate formula for each ingredient. Well might the busy general practitioner shrink from the task of puzzling over them. He stood before them as Boussard stood before the trilingual Rosetta stone, realizing that it was the key to much knowledge, but appalled at the task of deciphering it. Especially would a physician in a community where most of the children are breast-fed be apt to turn to a printed direction which relieved him of future responsibility. And, indeed, it might seem not only the easiest but the wisest thing to do, for the extravagant claims attractively presented by the agent who personally seeks him out may be backed up, be it regretfully acknowledged, by the quasi-scientific articles of eminent men, who have sullied their professional reputation that gain might follow.

Another potent cause has been the difficulty in obtaining clean milk fit for an infant's use. Until recent years this has, in the majority of places, been nearly impossible, and a permanent sterile food "guaranteed to contain all the necessary elements of milk" is attractive. The ease of preparation and the fact that ice could be dispensed with have appealed to many as arguments for the employment of proprietary foods. It must not be denied that for use where ice and fresh milk are not obtainable, food unalterable in dried form is a necessity.

The very low fat content of these foods, that which renders them totally unfit for permanent use, has undoubtedly made them of temporary value. The most frequent mistake in artificial feeding with cow's milk is probably overfeeding with fat, and the change to a fat-free prepared food brings about a prompt improvement and also a firm conviction that cow's milk cannot be digested and that this particular food is henceforth necessary.

The laxative maltose which many of the foods contain and which aids in overcoming the constipation troublesome with artificial feeding commends them to many.

These are the factors that have chiefly contributed to the demand for proprietary foods.

Before considering arguments against their use, let us look for a moment at their composition.

They may be roughly divided into those with and those without dried milk; in each of these classes there are some with much unchanged starch, some with the starch partially converted by malt into dextrins and maltose, and some with the starch almost completely converted. In addition, certain other variations have been brought about by adding lactose or cane-sugar or white of egg. One and all, they are very deficient in fat, low in proteins and salts, and they contain large amounts of insoluble and soluble carbohydrates, starch, dextrins, maltose, lactose and saccharose.

There are two chief arguments against their permanent employment: used without milk they fail absolutely; used [illegible] milk they are unnecessary. Their
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out milk [illegible] hopelessly [illegible] fat and many
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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

considerable proportion of cases by scurvy. The instance of the two manufacturers of different foods, advertised to be used without milk, who fed their own infants on their products with resultant scurvy, after which the infants were promptly cured by fresh cow's milk, is known to many. Since that time these foods are advertised to be used only with fresh cow's milk.

As permanent foods with milk they are unnecessary. There can be no doubt that many of them can be used with benefit with cow's milk, but just as satisfactory results can be obtained without them. There is no evidence whatever that they increase in any way the digestibility of cow's milk, and there is no reason why they should. The ingredients that they furnish can be furnished just as satisfactorily by much simpler and more economical means.

In ordinary modified milk the only food element requiring augmentation is the carbohydrate. Whether the addition be made by milk-sugar alone or by milk-sugar and starch, it requires no prepared food to do this. We can obtain any variety of flour and lactose just as easily and far more cheaply.

Many of the proprietary foods (the so-called malted foods) contain a large percentage of maltose. There can be no doubt that maltose is an exceedingly valuable sugar at certain times, and by its use results can be obtained which are almost impossible by other means. Why it acts satisfactorily when other sugars fail is another question to which no one has given a satisfactory answer. The verdict of clinical opinion both here and abroad is that under certain circumstances it accomplishes much, but no one claims that it is to be used permanently or except for clear indication. The pure maltose itself is so expensive as practically to debar it from use, but in solution with dextrins it is a by-product of breweries and may be obtained in a sufficiently pure form for use from many different dealers for an absurdly small sum, about 15 cents a pound.

We should also remember that it is not pure maltose that the proprietary foods contain, but a mixture of dextrins and maltose obtained in the same way by malting starches. Nor do we owe to the manufacturers the knowledge that maltose is valuable or its method of manufacture. Justus von Liebig deserves the credit for this; the manufacturers only appreciated the commercial possibilities.

There is no ground for the supposition that drying and powdering the protein of milk or of egg increases its digestibility or that of the various starches and sugars contained in the food. As to the value of the proteolytic and diastatic ferments, which it is claimed some of the foods contain, something will be said later. It is enough to assert here that the majority do not contain any. In order to preserve these ferments it is necessary to evaporate *in vacuo*. The process is expensive and whether the attempt is actually made or not by actual experiment it is found that there is often no ferment action whatever.

This brings us to a consideration of another of their disadvantages, namely, unreliability. They do not contain what they claim to contain, and their composition varies greatly from time to time, as shown by chemical analysis. A food which one year contained but a small amount of maltose and was, therefore, constipating and was used by numerous physicians after diarrhea for this very constipating action, the next year contained a large amount of maltose and so produced the very effect which it was supposed to correct.

That the manufacturers themselves realize that their products are uneven in composition is shown by the preface to a small pamphlet issued by one of the food companies. I quote from it verbatim:

> The accompanying tables have been compiled from various authorities, much time and trouble having been expended in the search of authorities on the various subjects. The results are published mainly with the view of showing what an unlimited amount of variation may exist in the standards published by different scientists. Some of these variations, such as the discrepancies existing in the table of analysis of infants' foods are incomprehensible and only aid in proving that chemistry is *not* infallible and that practical results go ahead of theoretical indications.

Surely comment on this is unnecessary.

Liebig complained, in 1866, that the manufacturers did not grasp the very kernel of his ideas and gave wrong directions with their foods; and more than thirty years later Keller, who expanded the teaching of Liebig and has done a great service in showing the value of maltose and large quantities of carbohydrates in certain conditions, has complained of his inability to have his malt soup properly prepared.

For temporary use it is difficult to see how these foods are superior in any way to various modifications that can easily be made in any house, and if fresh milk is not obtainable they offer no real advantages over the best brands of condensed milk.

That these foods are harmful or unnecessary is not an isolated personal opinion. It is the almost unanimous belief of those who have studied and written on the subject in this country and in England, and this belief is shared by Czerny and Keller, who, as writers on infants' dietetics, speak with the greatest authority. These latter especially lay stress on the fact that in health or disease proprietary foods are unnecessary.

It is very doubtful if in disease anything more can be accomplished by these foods than by the skilful use of the ordinary foodstuffs. We can obtain at any time practically fat-free milk, gruels of various kinds, all kinds of sugars, mixtures of dextrins and maltose and white of egg; and again be it emphasized, there is no reason why, when clean, these should be more digestible because they have been evaporated, dried and powdered.

I said "skilful use of ordinary foodstuffs," but a certain amount of knowledge and skill is required to use even proprietary foods properly, on account of the great differences in their composition. The man without accurate knowledge of dietetics cannot feed correctly either proprietary or ordinary foods. This subject has been greatly neglected in the past and is only now beginning to receive the attention that it deserves; but it must receive it, for the demand is great. When the medical profession at large acquires a working knowledge of dietetics we may confidently expect that the use of proprietary foods will greatly diminish.

PREDIGESTED MEDICINAL FOODS

There is very little possibility for argument in regard to the predigested medicinal foods, the evidence is so overwhelmingly against their use. They contain peptones and proteoses, cane-sugar, maltose, dextrins and invert sugar in small quantities preserved in alcohol of 14 to 22 per cent. strength.

Let us give these foods the full benefit and consider that all the alcohol and all the extractives that they contain can be utilized by the organism, a hypothesis which is certainly very doubtful. By calculation it is readily shown that, measure for measure, two of the most representative and widely used of these foods have only a little more than twice the nutritive value of whole milk and less than an equivalent amount of gravity cream—without the alcohol, they contain the same amount of nourishment as milk. The dose of these foods advised for a child of six months is a teaspoonful every four hours. This corresponds in nutritive value to slightly more than two ounces of milk, or slightly less than one ounce of cream in twenty-four hours, and when we consider that this six-months-old infant requires fifteen times as much milk or twelve times as much cream to maintain his body weight one readily sees how far they fall short of furnishing even a minimum amount of food.

Their method of production also consumes time and money worthy of being expended in a better cause. Assuming that such a food could be ingested without grave gastric, intestinal or other disturbance in sufficient quantity to nourish the six-months-old infant, it would cost about a dollar a day and would, moreover, require the child to take in twenty-four hours alcohol equivalent to six ounces of brandy, enough to terminate his short life or keep him in a continuous state of alcoholic coma. No! I think we may avoid without loss the predigested medicinal foods.

FERMENTS IN INFANT-FEEDING

The use of ferments in infant-feeding is confined almost entirely to two, a peptonizing ferment obtained from the pancreas and a diastatic ferment obtained from grain. They have their warm and their lukewarm adherents. There are, I think, no positive opponents except those who hold that their temporary use is unnecessary and their prolonged use apt to lower the infant's digestive power.

Were digestion a simple process and confined to a single ferment for each variety of food, there would be more ground for furnishing this ferment on the supposition that in gastrointestinal disturbance there is a diminution of the enzymes of the alimentary tract. But the process is not a simple one. It involves the interaction of several ferments with the requisite acidity or alkalinity best suited to each one and a proper physical condition in the stomach and intestines. Sufficient time for the action of each enzyme is also necessary.

With proteins it is no doubt true that stomach digestion can almost entirely fail and trypsin digestion be sufficient, but this digestion probably only goes to a certain point and the final breaking down into the amino-acids capable of absorption and utilization appears to be accomplished largely by the erepsin. To be logical we should supply this ferment also. It is doubtful, however, whether there is much of a reduction of the ferments in gastrointestinal disease and whether they are not almost always present in sufficient quantity to accomplish their work, provided other conditions are suitable. Dr. T. Wood Clarke, whose admirable investigation on the gastric digestion of infants in health and disease has just been published, tells me that with infants in whom there was no gastric digestion whatever this was due not to the absence of pepsin, but to the lack of hydrochloric acid, and that if this were supplied to the stomach contents peptic digestion was, in his experience, always prompt.

It is very likely that with intestinal digestion it is the conditions that are at fault and not the enzymes that are deficient. Certainly it is a fact that infants with gastro-enteritis absorb nitrogen from the food to an astonishing degree, almost if not quite as well as those in health. Thus Keller found that from 80 to 95 per cent. of the nitrogen of cow's milk was absorbed by infants with gastrointestinal disease, while healthy breast-fed ones absorbed from 83 to 95 per cent. of the nitrogen. Adler found only a slight increase in the albumins and albumoses of the stools of infants with intestinal disease. There would seem, therefore, very little ground for believing that the proteolytic ferments are much diminished in disease or for supplying more.

Conditions are similar in regard to the amylolytic enzymes, though evidence of the absorption of the products of digestion is more difficult to bring forward.

Jacubowitsch has shown that the sugar-forming enzyme of the intestine is but little interfered with by illness, and Steinitz and Langstein demonstrated that lactase is present in the feces of infants acutely ill, even when there is lactosuria. This would indicate an abnormality of absorption of sugar or some interference with the action of the enzyme, which normally transforms milk-sugar into dextrose, rather than its deficiency. All the proof that we have, therefore, seems to show that ferments are present in sufficient quantity in disease to perform their ordinary functions, but that conditions are not favorable for their activity. The altering of conditions so that ferments may work to their best advantage is quite another matter. I do not wish in any way to deny that in exceptional circumstances, which there is not sufficient time to discuss, ferments may be of value. In the great majority of instances, however, I believe them to be unnecessary.

It is not, I think, a narrow view to take that predigested medicinal foods have no reason for existence, that proprietary infants' foods are unnecessary, and that in pediatrics we can almost entirely dispense with ferments. The propositions are well supported by fact.

49 East Fifty-third Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EDSALL AND HOWLAND

Dr. A. Jacobi, New York City: These papers will stand for themselves and will not only be read but should do good work; but from personal experience I know they will not do so much good as they ought to. A good many times similar things have been told the profession and it has not minded them at all. Physicians will lean on the proprietary food and will swallow, singly and wholesale, the manufacturer's statements. That is my experience and there has been no sadder proof to me in my life of the gluttony, mental gluttony, displayed by many physicians, than by their eagerness to believe the men who are not medical men, who are not professional men, who have absolutely no reason for going into that kind of business, except to swell their bank account. I said that thirty years ago and forty years ago and I am at it still, and I do not believe I have made the slightest impression on my good brethren of the medical profession. Yesterday I passed a baby-food store and the man asked me, "Won't you take a specimen?" I said, "I will not take any specimen unless I pay for it." "Won't you take a little memorandum book?" I said, "I have one in my pocket." Then the man said, "Don't you like ours?" I said, "I have been writing against 'baby food' for forty years." With a sort of sheepish friendliness, he said: "Won't you write for us now?" I said, "It will take forty years more."

I believe that some more, and many more, will have to write against proprietary foods for forty years and still some will prescribe them or permit their patients to use them. Many manufacturers know they are robbing the people constantly. The people pay twenty or forty times as much for a proprietary food as it is worth, and although they know the same food can be had as that in the proprietary form at almost no expense. I believe I can only repeat what I said years ago on the same subject. I am sorry that it has to be repeated all the time, but I am not sorry that men like Edsall and Howland should take the matter up and speak of it in the forcible and scientific way that they have this morning. There is one little point that I might speak about: that is the importance of supplying hydrochloric acid in a great many instances. It is easy enough to do it when necessary. The amount of acid in the stomach in a child and in an adult may be very large and still hydrochloric acid may be required. The acid in the stomach is not always equal. What appears to be hyperacidity credited to hydrochloric acid may consist of fat acids and even in such cases the introduction of hydrochloric acid is required. As a practical measure, it will be advisable to counteract the presence of the fat acids in the stomach by giving an alkali. Either before a meal in order to do away with the fat acid and afterward give hydrochloric acid during or after a meal. The hydrochloric acid may be given in the medicinal way or it may be given in the food, and I still recommend in a number of instances the preparation which I have advised over thirty years ago and which was given to me by my then assistant, who is a good chemist, Dr. Rudisch. That means additional hydrochloric acid to milk in our fat: One part of dilute hydrochloric acid; mix with 250 parts of water; mix with 500 parts of good milk; boil gently. This gives a good preparation, which contains hydrochloric acid and casein in solution. There is never any coagulation. It is digestible, and milk may be given in this way when hydrochloric acid is needed. This mixed milk may be treated as common milk, mixed with cereals. In many children, and in adults, I have given magnesia when there was constipation; giving prepared chalk when the bowels were loose. There is only a single reason why proprietary foods should be given, that is to enrich men who want to be enriched. There is no other reason for putting these preparations on the market. Still we are always repeating the same thing, always giving the money of our poor patients, or rich patients, as the case may be. So far as the latter are concerned, I do not see why their infants should not share in simple and less expensive and more salubrious foods.

Dr. G. C. Smith, Boston: About thirty years ago I heard Dr. Jacobi's teaching and have watched with a great deal of curiosity the development of the dietetic problem as regards children. It is interesting, as well as lamentable, to see that, in face of the fact that so much valuable work has been done by Drs. Edsall, Holt, Rotch and others on the dietetic problems in children, absolutely nothing has been done practically in the matter of the dietetics of adults. Now, it is well known that the two great periods of life in which we do most for our patients are, first, the infectious period, in youth, and, second, the period after 50, in which there are diseases which are often the result of early intoxications and the diseases of infancy, together with luxurious living. At this second period we do nothing in the way of dieting, and we can do much more in that way than by all other means. The chief reason why we have not done more in the matter of dietetics late in life is because the subject has not been taught in medical schools. It seems to me that we should try and give pupils in the undergraduate schools such a training in dietetics that they may go out and treat patients properly, and the postgraduate schools should give to the general practitioners, at least, such a knowledge of dietetics as would guarantee their patients better treatment than they receive with the aid of drugs. During the past twelve or fifteen years I have seen much good accomplished with dietetic treatment, especially in the care of the cardiorenal and the gastrointestinal diseases of late adult life, and I can emphasize particularly one point made by Dr. Edsall, namely, the importance of teaching practitioners and undergraduates the necessity of knowing the value of the different kinds of food which they give, because of the common statement, which I hear made by practitioners, that they can diet their patients by letting them take a little of everything which they desire and they can reduce flesh in that way. That is a very dangerous method. I have often heard physicians say they were reducing their own flesh by slightly diminishing the amount of food they take. This is often harmful also. The physician must know food values. The importance of this knowledge will be illustrated in the first case in which it is applied in active practice. After treating a good many hundred cases of chronic affections, I must say that I have obtained much more satisfaction by adhering strictly to dietetic therapy than by drug treatment.

Dr. F. E. Stewart, Philadelphia: Those of us who were interested in the early work of this Section know how difficult it was to get a baker's dozen to meet, but, thanks to the work done by the Council on Pharmacy and Chemistry and the government, we are getting to know more and the membership of the Section is growing. I agree with Dr. Smith that teaching of undergraduates, and especially postgraduates, will solve this problem more than anything else, and this Section can take an active part as it contains a number of the teachers engaged in such work.

Dr. C. S. N. Hallberg, Chicago: While we may agree that the use of digestive ferments *per se* is of little, if any, therapeutic value, they have a great use as pharmaceutical agents in the preparation of predigested food when required. For example, in the administration of peptone, it may be desired to give peptonized beef by rectum, and in that way digestive ferments would be useful. Nurses, for example, should be familiar with the action of the digestive ferments in the preparation of peptonized beef or egg peptone and its use in the preparation of milk. It is well enough to condemn these proprietary infant foods, but what is to take their place? There is a desire for a semiconverted wheat, dextrinated. Now what is to take the place of this? The old Philadelphia salt-bag product is the only thing that I know of and a great many people will not take eight or ten hours to prepare that, and so far as I know there is nothing really to take the place of these preparations which are desired in infant feeding. If preparations similar to this dextrinated flour as made by boiling it for a long time in a salt-bag could be had it would perhaps solve the problem of the expense of infant foods.

Dr. George Dock, New Orleans: Even in giving food by rectum one can get along without using digestive ferments. I think it is entirely unnecessary to teach nurses to predigest milk in order to use it by enema. For years I have given milk and egg without any predigestion. I am positively certain that as a general thing they are absorbed almost or quite as quickly as peptonized milk, or peptonized beef, and I feel sure, though not scientifically convinced, that a milk and egg mixture or milk alone given by enema is not so irritating as peptonized milk. Dr. Edsall referred several times to diabetes, and I would like to speak of that as a striking example of the slowness which Dr. Jacobi has so touchingly referred to in the assimilation of therapeutic knowledge. Dr. Jacobi is too pessimistic in regard to his teaching. He seems to think that no one has profited by his writings and his teachings. We all know this is not true, that he has many enthusiastic followers. In regard to diabetes, there is a striking example of forgetfulness or indifference, although we have accurate information in regard to underfeeding and the production of acidity, we see a large number of diabetics who have been permitted to go until they are absolutely starved, they have been kept on a carbohydrate free diet so long that they develop toxic symptoms and actually die. An exceedingly sad result of that sort of treatment has repeatedly fallen under my observation. A patient is put on rigid diet and fails visibly. He then puts himself under the care of an osteopath, or some one of that kind, and is told to eat anything he pleases. After a while his improvement is obvious and especially in appearance. The rapid improvement under the quack strikes people; they don't see the later developments of the case, they don't see how the patient again begins to go down and don't see how after the patient is put under rational treatment he makes a much greater improvement, which the quack doctor could never have attained, or at least only by chance. So it seems to me that the absurdity of putting patients on strict diet should be reiterated often. It is easy to demonstrate that the flours for which patients pay anywhere from 50 cents to $1.00 a pound, contain as much starch as ordinary flour, and it is a simple matter to show such patients that they can take just as much flour or potato or other carbohydrate.

Dr. B. Fantus, Chicago: I am sure that we all agree on the necessity of more teaching in dietetics, but it is a very remarkable fact that the recent report on curriculum of the Council on Medical Education of the American Medical Association allots only twelve or fourteen hours to the teaching of non-pharmacologic therapeutics, including, as it does, dietetics, hydrotherapy, electrotherapeutics, climatology and a number of other branches. That allowance of time is necessary for the teaching of dietetics alone, and as a great deal of stress is laid on this report, I herewith wish to protest emphatically against this portion of it. I believe the time allotted to non-medicinal therapeutics ought to be, at least, multiplied by five. I have one use for the proprietary foods, and that is when I wish to prescribe no diet. As it happens in the practice of all of us, there are conditions in serious diseases, for instance, in pneumonia, when the patient's digestive power is at the lowest possible ebb, when it is desirable to withhold food; but if the physician does that the patient's relatives will not stand it. They will protest, they will call in consultation, they will do everything under the sun to get this very sick patient fed. In such cases, if they pay $1.00 a bottle for one of the proprietary foods and the patient is fed by the teaspoonful it will have the effect of giving no diet and the relatives will have the satisfaction of thinking that the sick one is getting food.

Dr. S. Solis Cohen, Philadelphia: The tendency in therapeutics, as in pathology, seems to be to go from one to another extreme of the swing of a very long pendulum. At about the time that I entered on the practice of medicine, the enthusiasm over predigested foods was great. The teaching began in the laboratory and extended to the bedside. Predigested foods were prescribed for anything and everything and were recommended in addresses and articles by some of the same investigators who now find nothing too harsh to say of those who use them. Every one was expected to recover from everything, typhoid, cancer, diabetes and tuberculosis included, if only he got a teaspoonful of predigested food often enough and over a long enough period. Of course, such a mistake corrects itself; but it is equally illogical to go to the other extreme and say that predigested foods are always inapplicable. The fact that digestive ferments cannot climb trees is no reason for saying that the digestive ferments are not, under certain conditions, useful crutches, which can help the lame stomach or intestine over the rough places of the way, and be thrown aside when the necessity for their aid is past. I am convinced by long experience of the usefulness of what I am in the habit of terming pancreatized milk, rather than peptonized milk, that is, diluted milk with soda and pancreatin added before it is given to typhoid patients. This method greatly reduces the size and quantity of the curd passing into the ileum and by that much diminishes the liability to hemorrhage. I am also satisfied that there is less fermentation in the intestine, at least less distention, and thereby also a reduction of the liability to hemorrhage. And so there are many other conditions in which for a definite purpose and for a limited time the predigested food or the administration of a digestive ferment may be useful. My experience has been a little different from Dr. Dock's with predigested milk in rectal feeding. Fully pancreatized predigested milk beaten up with a whole egg and a few grains of pepsin has served me best. Dr. Dock, however, must be aware that in advocating rectal feeding of any kind, he is treading on dangerous ground, imperiling his reputation as a man of science. Certain able investigators have asserted that no food is absorbed from the rectum. Now that statement is, of course, as extreme and as definitely contradicted by the world-wide clinical experience of competent observers as the assertion that digestive ferments are never useful. There are certain times and conditions in which these measures are helpful and others in which they are futile, or even harmful. It is our function as artists in therapeutics, and I always lay stress on the fact that it is our function as practitioners of the art, as well as students of the science of medicine, to determine when they contraindicate the practice under discussion. In that determination we have to be guided by clinical phenomena; interpreting these in the light of all the exact information that laboratory investigations in chemistry and pharmacology, physiology and pathology may give us. I thoroughly agree with Dr. Fantus that there are a number of proprietary foods whose chief value is in feeding the family; and especially so in the case of children with so-called "summer complaints," when it seems to be absolutely impossible otherwise to avoid harmful interference in the nursing. Under such conditions a few drops of a colored fluid called beef juice, given in sterilized water, or whatever medium one chooses to employ, saves trouble and gives the patient a chance to recover. In conclusion, I am very glad to learn that the college in which I have the honor to teach has been so far ahead in medical education. It is more than twenty-three years since I began lecturing in that college, at that time on extra-medicinal or, as I now term it, physiologic therapeutics, and I had a term even then of more than twelve hours. As I no longer hold that position I may add that the work is still done and done well as a part of the regular curriculum of the fourth year class.

Dr. William H. Mercer, Pittsburg, Pa.: One point that Dr. Smith made is, I think, of great value. He maintained that the general practitioner—I speak from the standpoint of the general practitioner—did not give enough attention to dietetics. The pediatrist does so. I can fully subscribe to this. In this connection I would mention a procedure which for the last four or five years has stood me in very good stead. Every patient who comes to my office is asked to tell me briefly what he eats. I put down his breakfast, his lunch and his dinner. Having this information, and I would like to lay stress on its value, I prescribe a diet. The trouble is not with the patients, they are always asking for dietetic instructions. If the physician knows what they usually eat then he can prescribe a rational diet.

Dr. David L. Edsall, Philadelphia: I consider Dr. Mercer's suggestion an extremely important one. As I said in my paper, I think it still better to put down precisely what the patient eats and the time at which he eats it. Unless this is done the physician forgets many important details. I am strongly in favor of using temporary starvation in bad cases of alimentary disturbance and in cases associated with severe toxemia, such as Bright's disease. But starvation must be employed with full realization that it may be a very dangerous measure unless carefully watched, and I would protest strongly against some of the things that have appeared in the medical literature in recent years, such, for example, as the recommendation that typhoid patients be starved for even as long as ten or twelve days—most pernicious advice, and extremely dangerous. The cases I referred to in which fatal starvation occurred were not diabetes. A qualitative starvation death, so to speak, does occur in diabetes unquestionably, but I referred to direct starvation and was thinking particularly of two typhoid patients who were at death's door from inanition when I first saw them, and who died of this cause, having been fed for weeks on liquid foods that were essentially without any nutritive value. The danger of producing grave acidosis in diabetes is, however, very important. I have repeatedly seen patients become toxic with great rapidity and go quickly into coma because of sudden change of diet. As to ferments in their relation to predigestion of foods, I would note that I have been particularly interested in this question and have done some work on it, but my more mature judgment has led me to such a point that I have not for years ordered peptonized milk or pancreatized milk except in most unusual circumstances and then without any feeling that I could not have accomplished the same purpose in other ways. In regard to rectal alimentation, I would say that I do believe in figures, and I have done some work myself in regard to absorption in rectal alimentation. Many others have also worked on it, and I think it is clear that rectal alimentation accomplishes very little, only from one-fourth to one-sixth the amount necessary to maintain nutritive equilibrium being ordinarily absorbed. The work that has been done on this question has been chiefly when the patients were using predigested food by rectum. It would appear to be reasonably clear that predigestion accomplishes very little in rectal alimentation, because at most very little can be accomplished by this or any other means. Dr. Dock is right, of course, in his statement that if the predigestion is carried far the products will irritate the bowel. As to predigestion in typhoid fever, I can state that simple dietetic measures accomplish just as good results with much less trouble. I had an exceptional opportunity to observe this disease in Philadelphia, and have studied a series of over 4,000 cases of typhoid in about five years in the Episcopal Hospital; of this number I saw personally over one-fourth. Predigested food was used in scarcely any of these cases and yet the number of hemorrhages and perforations was well below the average of cases as generally reported from hospitals, and the only digestive disturbances that had any relation to milk were due to infected milk. When clean milk was used digestive disorder disappeared. I have been wholly unable to see that predigestion is either necessary or desirable in typhoid fever or similar cases, and the large series of records that I have just spoken of certainly did not indicate any necessity for it.

THE ETHICS OF ANIMAL EXPERIMENTATION *

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Is man morally justified in causing animals pain, and, if so, under what conditions? This is the moral issue raised by the practice of animal experimentation. The attitude of the average person on this question is no doubt more likely to be determined by temperamental bias and accidental prejudice than by any clear vision of fundamental principles. Nevertheless, it seems worth while in this day of increasingly bitter controversy over the experimental use of animals to inquire somewhat closely into the ethics of the case.

Historically, we find two fundamentally divergent views entertained on the general subject. Most widely prevalent—and sanctioned at one time or another by religious practices among all peoples—is the view that man is the overlord of the animals and may use them for his pleasure and profit, even to the point of robbing them of life. This view undergoes much softening and is hedged about with humanitarian restrictions among the more highly civilized races. Over against this is the belief that man has no right to take animal life or cause animal suffering. Buddhism, with its belief in the transmigration of souls, is the great religious embodiment of this view, although it has perhaps seldom gained a strictly consistent execution in practice. In estimating the import of this radical discrepancy in moral principles, one naturally looks to the origin of moral belief as possibly affording illumination.

Moral principles have generally derived their power over human action from one or more of three distinct sources: (1) They have been accepted as embodying divine law implanted in the consciousness of each individual, or revealed through the inspiration of holy men. This is the intuitive view of morals. (2) They have rested on custom, law, or social and political usage. This is the traditional view. (3) They have been justified by the happiness and social welfare which it is believed follow on obedience to them. This is the scientific view.

Under no one of these conceptions of the origin of morality do we find immediate and unambiguous guidance in the problem of animal experimentation. Religious teaching is equivocal. Certainly most of it sanctions the taking of animal life, and the consciences of primitive people at least seem to cause them no distress, even when they torture dumb creatures. Custom has varied among different races, but, in the main, has undoubtedly favored the treatment of animals in accordance with the unbridled wishes of man. Even among civilized peoples, gelding, dehorning and other mutilations of animals are countenanced under conditions which unquestionably occasion much suffering. At the present time controversy is carried on almost wholly under the ruling conceptions of the third division—i. e., the issue is argued as one of fact concerning the consequences of animal experimentation. In any event, this is the only point at which argument may hope to convince the open-minded, one way or the other. Obviously, the argument from custom proves nothing and convinces nobody. The man who believes in the transmigration of souls between human and animal forms cannot be dealt with in the limits of this paper, but in the Anglo-Saxon world, at least, he is to all intents and purposes non-existent. Certainly the great mass of modern critics of experiments on animals do not rest their case on any such foundation. They assert that needless pain is an unmitigated evil, and that its gratuitous and intentional causation is a sin and a crime. They allege that animal experimentation is (1) not justified by any results it has yet attained and (2) that it is demoralizing and brutalizing in its influence, both on those who conduct it and those who observe it.

Certain more conservative critics urge that, although its occasional employment has resulted in justifying benefits both to man and the animals, it is done far too extensively, is done when the results cannot possibly justify it, and done carelessly and with indecent disregard of all the humanities. Clearly, this is an indictment drawn on alleged facts, and no verdict can be rendered without an examination of the facts.

If it be granted, however, that the experimental procedure is ever justified by its results, the basal ethical issue is closed. It only remains to make sure that in a given case the warrant is certainly adequate, that the minimum of pain is caused the creatures used, and that the indirect effects on the public and on students are not such as to augment the spirit of cruelty or insensitiveness to suffering.

Fortunately, or otherwise, we have no calculus by which we can estimate the amount of pain caused an animal by a given experimental operation, or the amount of suffering saved to other creatures as a possible result of its sacrifice. But with the literally inestimable benefits which are daily being reaped in the prevention of smallpox and in the amelioration or prevention of diphtheria—to mention only these two cases, out of a rapidly lengthening list—it is difficult to understand how any one can honestly frame a sweeping indictment of operations on animals to which these victories and others like them are unquestionably due.

As a matter of fact, the case is somewhat complicated in the public mind by the appearance among the extremer critics of not a few gentlemen who sign themselves M.D., and who claim a professional knowledge of the details of the case. To be sure, the overwhelming majority of medical men, including all the great leaders of the profession and all the great medical organizations, are staunch defenders of animal experimentation.

It would be ridiculous to pretend that all operations on animals have such striking justification, either in purpose or in result, as those which led to the discovery and perfection of vaccine or antitoxin. Many of them frankly fail to result in immediate scientific progress, and many are done for purposes of instruction, the beneficent results of which are always uncertain and frequently long deferred. But, as has been said above, the fundamental ethical issue is closed, once it be granted that there are *any* conditions under which animal experimentation is justified. The problem which remains is simply that of determining the circumstances and conditions which warrant particular forms of the method.

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* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Six of these pamphlets are now ready, taking up the questions of ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, etc. An editorial survey of the series appeared in The Journal January 1 and a list of the pamphlets, with prices, was given on advertising page 8 of that issue.

Just at this juncture arises a peril which medical men justly fear. Who shall determine what precautions are to be thrown around animal experimentation, who shall be allowed to undertake it, and what circumstances shall be held to justify it? At this point the opportunity opens for unintelligent and officious interference such as might well jeopardize medical advance for a generation to come. *It is sincerely to be hoped that sentimental considerations, however honestly intended, will not be allowed to rob those most able to judge wisely and fairly of these matters, of the power of control, which should be in their hands.*

When we inquire what, in a practical way, honest and humane people would consider sufficient justification for experimental operations on animals we meet all the vagaries of personal idiosyncrasy. For one, only the saving of human or animal life in large numbers would justify the procedure. For another, adequate reason would be found in a mere lessening of pain, even though the question of death were not involved. For still another, any advance in scientific knowledge which might in the future conceivably conduce to human or animal welfare would afford sufficient justification. Evidently we are here plunged in the waters of casuistry, where it is hopeless to follow. Biologic scientists generally hold the third view mentioned. Probably the rank and file of the lay public would espouse the second view; while a few sensitive souls, especially those of vegetarian proclivities, hold the first view. Finally, in a still smaller group, are those extremists who will hear of nothing but the absolute prevention of animal experimentation.

Those who approve animal experimentation at all, except perhaps men of science, are no doubt moved by the same general motives which lead us to approve whatever is customary and familiar. We harness the horse and force him to work for us, whether he likes it or not. We rob the cow of her calf that we may ourselves enjoy her milk. In like manner we rob the hen of her eggs and think no worse of ourselves for the larceny; and, finally, we wind up our tale of coercion by a ruthless slaughter, for food or sport, of both bird and beast, wild and domesticated alike. With such customs in vogue about us, it is not strange that most persons should lend a willing ear to the defenders of properly controlled experiments on animals. The only wonder is that so many persons have been willing, on imperfect and misleading evidence, to countenance and even endorse the advocacy of repressive measures of the most drastic sort —measures entirely unwarranted when judged by the prevalent practices in the treatment of animals in every other human relation. Not that one would wish to justify a bad practice because other worse ones were in operation. But when one takes a sensational account of the torturing of animals in some surgical laboratory, and judges the case without any regard to an examination of the precautions taken to secure anesthesia for the animal, and without any regard to the prevalent ethical sense concerning the extent to which animals may be sacrificed for human welfare, one obtains a morally distorted and unbalanced point of view, from which no sane judgment can be expected to emanate.

In the main, modern opinion cannot be made to take seriously the view that all animal life should be sacred. As soon as the mosquito was convicted of responsibility for yellow fever and malaria his days among civilized men were numbered. He was always a nuisance. Now he is a homicidal criminal. It may take some time to exterminate him, but he can no longer find any intelligent human defender. Let us hope that the fly will similarly be put under an everlasting ban. Assuredly his responsibility in the matter of typhoid and other filth diseases has been abundantly demonstrated. Poisonous serpents and vermin of all sort have long ceased to enjoy any considerable immunity from slaughter. In a practical way, insects are apt to be thought of as being outside the pale of ordinary humanitarian consideration; but if one is going to inquire seriously into the ethics of our human relations to animal forms, one must recognize that the justification for protecting insect life is neither greater nor less than that for protecting the higher animals, provided any of them menace human welfare. And if interference with their lives be permitted on the ground of human welfare, the avenues are at once open, so far as morality is concerned, to the various forms of operations on animals.

The trend of modern opinion among civilized people is unquestionably toward a more drastic application of the principle of the right of society to protect itself. The criminal is punished not primarily in retribution, but in order that society may not suffer further his evil doings. Temperance legislation, whether wise or not, is designed not only to help the drunkard, but particularly to remove temptation from the path of the innocent. Quarantine is possibly the best illustration of protective social interference with individual freedom. Often the isolation of a patient suffering with contagious disease may operate to endanger his life. But the danger to the community arising from failure to isolate him is commonly adjudged a greater evil. And so at the risk of harm to the patient the community protects itself. How much more, then, for people who assent to the logic of this principle and to its moral justification, should the use of animals seem warranted, when such use can be made widely contributory to the decrease of suffering, both human and animal? Of course, if one entertains the "Christian Scientist" view of the illusive character of pain and disease, all these conclusions fall to the ground. But, on the same principle, there would be no justification for doing away with the mad dog and the venomous serpent. And, in any case, the "Christian Scientist" is not likely to be influenced by any ordinary considerations on this matter, either one way or the other.

Not only is the right of society to protect itself against crime and disease gaining daily a wider recognition, it is also true that the public is coming to a juster appreciation of the relation of science to social welfare. Science has too long masqueraded in the popular mind as a realm of impractical theory, touching the life of the common man only in the most remote way. The contemporary world appreciates increasingly the fallacious character of this view. In industry, in commerce, in medicine, and even in government itself, the scientific knowledge of yesterday is the basis of the practical device of to-day. Science is simply the intellectual aspect of social progress, and, when this conception is still more familiar than it is at present, we shall hear less of the *merely* scientific interest in animal experimentation, as though there were any genuinely scientific interest which could escape contribution to social advance. Certainly, biologic science, quite as well as pure medicine, ought to be given freedom to pursue its researches in the general interests of mankind, with such methods as may commend themselves to investigators. To obstruct biologic science by a general prohibition of experiments on animals, or to obstruct any other science by proscribing approved methods, is to sin against the light and to turn back the hands of progress. No thoughtful person is likely seriously to commend such a course.

The question as to the moral effect of the practice of animal experimentation on persons who engage in it or observe it is difficult to dispose of effectively. Undoubtedly most persons feel a squeamishness about their first operation on an animal, which later on they lose, and the critic of the practice is likely to interpret this fact as meaning that the practitioner has become callous and indifferent to suffering. I see no reason to deny that this result may occasionally occur. But in every reputable laboratory the usages are as humane as the circumstances will permit, anesthesia is the universal practice, and it is perfectly certain that the total amount of suffering which the animals undergo is negligible in comparison with that which confronts most of them in a state of nature. Moreover, a loss of the original squeamishness is by no means synonymous with a loss of practical tender-heartedness. It may act simply to insure a steadier and prompter hand, with a corresponding decrease in the length of time occupied by the operation and an increased chance of a favorable outcome. It should be remembered, too, that the selfish interests of the operator almost inevitably and invariably make it to his advantage that the animal should suffer as little as possible, in order that its vigor and vitality may be at the maximum. It should also be added that, just as many surgeons are most tender-hearted, despite their apparent indifference to the suffering of their patients, so many men who do a large amount of operating on animals are keenly alive to the welfare of their animals. But even if all experimenters were hardened by their work into a disregard of animal pain, society might still pronounce the value of their results to outweigh this drawback. In the larger view which looks to the ultimate welfare of society as a whole, such men are among its most valuable humanitarian members, whatever their personal attitude toward the animals with which they work.

In conclusion, then, it may be said that we find no obstacle to the practice of animal experimentation in any intuitive moral convictions, nor in the traditional morality of our own race. When we try to estimate its justification in terms of its results, we find that it has precisely the same kind of warrant as that which attaches to all our great social enterprises, in each of which we are ready to sacrifice a lesser good for a greater good, and are willing to encounter a moderate evil in order to escape a greater evil. For the sentimentalist, to whom all thought of gratuitous suffering is abhorrent, probably no argument can ever avail to justify certain forms of experimental procedure. On the other hand, to the man familiar with the revolutionary advances in science and medicine which have originated in the experimental use of animals its condemnation seems the last word of a pernicious insanity. To the great public, representing the intermediary between these extremes, it is to be hoped that a calm and discriminating judgment may be vouchsafed, and one which takes into account all angles of the case. In the long run we have confidence in the integrity of our public judgments on moral issues. In a case so serious as this, we need the highest degree of deliberation, sobriety, and intelligence.

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THE FUNCTIONAL ACTIVITIES OF THE KIDNEYS *

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This article consists of a report of the amount of work which I have done, tending to show the value or the lack of value of the tests which are being used at the present time to show the permeability of the kidney.

My attention was originally called to the value of this work by Dr. Robert Holmes Greene, in 1904. The result of some of the work done by me at that time and for some time subsequent was published in his text-book.[1]

I need hardly mention the various procedures which have been attempted in the past and by which it has been sought to determine the functional activity of the kidney, such as the estimation of the amount of urea, phosphates, chlorides, quantity of urine, cryoscopy, or the presence or absence of casts and albumin.

OLDER TESTS OF RENAL FUNCTION

Thirty-three grams of urea was estimated to be excreted by a healthy individual in twenty-four hours, or about 2 per cent. of the quantity of urine passed, and this has been considered an index of the normal renal function. Urea in the urine is dependent largely on the proteid element of the diet. As is well known, meat diet will increase the elimination of urea and a non-proteid diet will diminish it, but at no time will a non-proteid diet result in the total absence of urea, as a certain quantity of urea is indirectly derived from tissue metabolism. Munzer and Kaufman in 1894 proved that urea was also formed in the liver and to a small extent in other organs. It also seems evident that renal disease may indirectly produce a variable output of urea by increasing or diminishing metabolism or interfering with assimilation. Fever in any renal disease will cause increased metabolism with a corresponding increase in the quantity of urea excreted. Licci[2] states that diminished quantity of urea in renal diseases is entirely due to disturbances of the nitrogenous metabolism, and that renal permeability to urea is increased rather than diminished. The same is corroborated by Maragliano.[3] From such observations as these it is evident that the quantity of urea which comes to the kidney for removal must be a variable one, depending on absorption, tissue metabolism, diet, hepatic and other glandular action, and any of these processes may be affected by disease. All this tends to show that we cannot rely on the inconstant supply of urea to the kidney for elimination in estimating its functional activity.

Neither can we determine the functional activity of the kidneys by the quantitative estimation of chlorids excreted by the kidneys, as it is a well-known fact that a constant content of sodium chlorid is maintained in the tissues and fluids of the body and that its principal supply comes from the food; but we also know that the absorption of sodium chlorid stimulates metabolism whether the kidneys are healthy or diseased. Chlorids are diminished in the urine in fevers to a large extent and increased in the urine when the temperature falls.

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* Read before the American Urological Association, Atlantic City, June 7, 1909.

[1] Greene, R. H., and Brooks, H.: Diseases of the Genitourinary Organs and the Kidney, Saunders, New York, 1908.

[2] Licci: Policlinico, 1901, p. 400.

[3] Maragliano: Clin. med. ital., 1902, p. 437.

Mohr[4] has demonstrated that there is an excess of chlorids in the urine in chronic nephritis and that there is a marked decrease of chlorid in acute nephritis. Researches of Albarran[5] tend to show that the quantity of chlorids passed in twenty-four hours does not furnish any indication of the functional activity of the kidney.

The amount of uric acid and phosphates in the urine does not give any reliable information as to the functional activity of the kidney.

When we consider how many factors influence it, the quantity of urine in itself would not be considered as a valuable index to kidney permeability. Work done by Albarran recently, however, has shown that studies of the renal function by the ingestion of large quantities of fluid may be, in certain cases, an index to kidney permeability. At some future time I hope to have the pleasure of presenting my own work recently carried on along this line. I do consider, however, for a rough test, the twenty-four-hour urine with the specific gravity in order to estimate the quantity of solids as of some value in determining chronic kidney disease.

Cryoscopy is determination of the molecular concentration of the urine. This method of von Karonyi is a very ingenious one of determining the functional activity of the kidneys, but von Karonyi himself says that large quantities of water consumed by patients will have a great effect on the freezing-point of the urine, even to diminish it to 1 per cent. or less. Also a very low molecular concentration of the urine will be found in the various forms of anemia. In order to get the best results from this method it is necessary to cryoscope blood and urine both, and, as it takes three drams of blood, it is a test which, while it can be carried out under certain conditions, it will be found impracticable for general use.

It is hardly necessary for me to point out how rapidly the older methods of urinary examinations are passing into disuse. While the presence or absence of casts and albumin may in certain cases bear some relation to the state of the kidney or kidneys, we feel that no such corelation exists at present, as was formerly the generally accepted opinion. That this is true has been very well demonstrated by the work of such able observers as Richard Cabot[6] of Boston, Kapsammer[7] and many others. To be sure, while such factors as albumin and casts may not always be indicative of a diseased state of the kidney, their constant presence in large amounts might indicate some abnormal state of the body.

TECHNIC AND RESULTS OF ELIMINATION TESTS

Having briefly mentioned some of the various methods of estimating the functional activity of the kidney, let us now consider some of those which are being used at the present time in connection with ureter catheterization, and with which I have been experimenting for more than five years. The principle of these methods consists in introducing foreign substances into the human body and noting the time of their elimination by the kidneys. The principle is by no means a new one, as Dr. Hahn in 1820 noticed the odor of violets in the urine after the ingestion of turpentine, and also the absence of the characteristic odor in the urine after eating asparagus in patients suffering from nephritis. My first experiments were with methylene blue and phloridzin; then, three years later, I used indigo carmine. The methylene blue test was introduced by Achard in 1893, in the diagnosis of kidney diseases. Klemperer[8] was the first to apply phloridzin in clinical medicine, in 1896. Achard and Delamere used phloridzin for testing renal function in 1899.

The following is the technic of the tests:

Methylene Blue.—Catheterization of both ureters and intramuscular injection into the gluteal region of 15 minims of a 5 per cent. solution.

Phloridzin.—Catheterization of ureters and subcutaneous injection of 15 minims (1 to 200) freshly prepared.

Indigo Carmine.—Catheterization of ureters and intramuscular injection of 20 c.c of 4 per cent. solution.

I began my experiments with phloridzin and methylene blue in twenty-five perfectly healthy subjects, the experiments being conducted very thoroughly, with the results that the phloridzin gave the sugar reaction in eighteen to twenty-two minutes and the methylene blue tinged the urine in twenty-six to thirty minutes after the injection. After having a standard time for the appearance of the blue and the sugar in the urine in healthy kidneys, I began to apply the same tests to diseased kidneys, and noted the variations in time. The following is a list of kidney diseases in which the tests were conducted:

Interstitial Nephritis.—Twenty-eight cases. Delayed excretion was noticed in twenty-three cases, the two kidneys being alike. In two cases there was a delay in the time limit on the right side; normal time limit on the left. In three cases there was a delay in the time limit on the left side, normal time limit on the right.

Parenchymatous Nephritis.—Nineteen cases. There was a time delay in both kidneys.

Tuberculous Kidneys.—Eight cases. In two there was delay on the right side; normal on the left. In six there was delay on both sides.

Malignant Nephritis.—Four cases. In three cases there was delay on the left side; normal on the right. In one there was delay on the right side; normal on the left.

Calculous Nephritis.—Twenty-one cases. In twelve there was unilateral delay; in nine, delay from both sides.

Hydronephrosis.—Five cases. In four there was a delay from left side and in one from the right kidney.

Pyonephrosis.—Nine cases. In six cases there was delay from the left side; right side normal. In three cases there was delay from the right side; left side normal.

Most of the above cases came with a clinical diagnosis from other physicians.

In applying these tests I found phloridzin to be the most reliable; the time delay of the glycosuria represented the degree of renal inactivity or the degree of structural changes in the kidney.

The methylene blue test, although good in most cases, failed to tinge the urine in three cases after four hours' observation and in two cases of parenchymatous nephritis it tinged the urine in twelve minutes after injection.

I continued my investigations in twenty cases of diseased kidney with indigo carmine and verified it with phloridzin, and while the phloridzin gave the sugar reaction in the proper time, the indigo carmine acted like methylene blue. The indigo carmine usually tinges the urine in about five minutes, which time I take as a standard in testing the functional activity of the kidney, but, as indigo carmine is decolorized by alkaline purulent urine, we may be misled in the application of this test.

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[4] Mohr: Ztschr. klin. Med., 1904, p. 331.

[5] Albarran: Exploration des fonctions rénales, 1905.

[6] Cabot, Richard C.: Clinical Examination of Urine; A Critical 1905, xliv, 837. Study of Common Methods, The Journal A. M. A.,

[7] Kapsammer: Erkrankungen der Niere, Vienna and Leipsic, 1907, p. 28.

[8] Klemperer: Verhandl. d. ver. f. inn. Med. zu Berlin, 1896.

I will not attempt to enumerate the above cases with their histories, but will say that most of them were under observation of skillful physicians who based their diagnosis on the clinical symptoms in connection with urine analysis made in the best laboratories.

Despite the diagnosis, I found by these tests nine subjects of supposed interstitial nephritis, who responded perfectly to the standard time limit of excretion of sugar and also the methylene blue test, and four subjects of supposed parenchymatous nephritis who showed perfect functional activity of the kidneys.

Autopsies were performed in five of the last named cases; ten microscopic sections of each kidney were made and studied carefully. No structural changes of the kidneys were evident, although three of the cases had been diagnosed as parenchymatous nephritis and two as interstitial nephritis during life.

All of the five cases showed by the phloridzin and methylene-blue perfect renal activity, in spite of the clinical symptoms and urine analysis.

One of the three patients supposed to have parenchymatous nephritis died from large gumma in the fourth ventricle of the brain, one of pneumonia and one of tetanus.

Of the two patients with supposed interstitial nephritis, one died of pneumonia and the other of abscess of liver. From these facts we can see that we should not place too much reliance on the clinical symptoms and urine analysis in diagnosing kidney diseases.

I have had other cases in which albumin and casts were present in the urine. One very old man, who had been refused life insurance forty-two years before, was examined, with the result that both specimens of urine had the same specific gravity and the same amount of albumin and casts and both tests showed perfect functional activity of the kidneys. In these cases, however, outside the evidence furnished by the urine, there were no clinical manifestations of disease.

I have within the past four years, with the aid of my colleague, Dr. H. J. Friedman, examined 2,200 specimens of urine; the patients had not consulted me as to their kidney condition, but were being treated for various ailments, with the following results: Albumin was found in 85 cases; albumin and casts, in 62 cases; transient diabetes, in 12 cases, and true diabetes, in 9 cases.

Of these 85 patients having albumin only, I tested 40, 38 of whom showed perfect renal function and 2 imperfect. Of the 62 patients with albumin and casts, I tested 20, 12 showed perfect renal function; 8 imperfect.

Very curiously, in four cases of transient diabetes, on catheterization of both ureters I found sugar coming from one kidney, and when the temporary glycosuria had disappeared I tested the kidneys with indigo carmine and phloridzin and found imperfect renal function in the kidney which gave the glycosuria. The explanation of this curious phenomenon I am unable to give.

All nine patients with permanent diabetes were tested. Sugar was found coming from both kidneys and the functional activity of both kidneys was greatly diminished. In one case of permanent diabetes the indigo carmine tinged the urine in one hour and a quarter and the methylene blue in two hours and twelve minutes.

CONCLUSIONS

My studies lead me to the following conclusions:

1. They confirm the views of those who believe that little value can be placed in the presence of casts and albumin alone, as evidence of kidney disease, for my statistics show that one in every fifteen persons walking the streets has albumin or albumin and casts in the urine.

2. The most accurate test for permeability of the kidneys is phloridzin in connection with ureter catheterization, although it is sometimes a very tedious process. Next of importance is the indigo carmine, which is a very quick test, and last, methylene blue.

3. The relationship of transient glycosuria to impaired kidney function when found in one kidney is deserving of study and investigation.

4. These investigations tend to show that the diagnosis of kidney disease by chemical tests and clinical symptoms in most instances is not borne out by the examination with phloridzin, methylene blue and indigo carmine.

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ACQUIRED INTESTINAL DIVERTICULA

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Diverticula of the intestines are without doubt more frequent in occurrence and more important from a clinical standpoint than is generally realized. Although statistics on this matter do not exist to any extent, yet it is evident from the few figures available that this condition is by no means rare.

By diverticula are understood localized dilatations of the intestinal wall. These are naturally subdivided into two varieties, the congenital and the acquired, the former being particularly well recognized. Meckel's diverticulum and the appendix (if it be so regarded) have been studied for many years; their embryology, anatomy, physiology and pathology have been dealt with voluminously. Consequently they will not be discussed here.

It is the acquired variety, however, that is at present attracting much attention, its importance having been understood only within the past few years. This type is supposed to occur toward adult life, as it has not been described as having been found in childhood.

These acquired diverticula might again be subdivided into the true and false, according to whether or not all the layers of the intestinal wall are present. This division does not seem, however, to be of any special value. If any tissue is lacking it is that of the muscular coat, and, as will be shown, this is largely the result of mechanical conditions.

The diverticula are as a rule numerous, varying in number from three or four to several dozen. In size there are the greatest differences, from those of almost microscopic dimensions to others several centimeters in diameter. In the majority of instances they are flask-shaped, the opening into the intestine being less than the diameter of the expanded portion. This construction has a very distinct bearing on the clinical importance of the condition.

The favorite site is at the mesenteric attachment, the dilatation lying between the layers of the mesentery. They do not, however, always occur at that point, as cases have been reported in which they were found along the free border of the intestine.

Although found most commonly in and adjacent to the sigmoid flexure, yet they may occur anywhere along the alimentary tract, beginning with the duodenum.

The walls of these expansions are quite thin and transparent as a result of the stretching of the intestinal coats. Large blood vessels are frequently found coursing over their surfaces, and as a rule the diverticula are filled with intestinal contents, the contents varying according to the portion of the canal involved.

When examined microscopically, it will be seen that the wall of the diverticulum is composed of the same coats as is the intestine. The mucosa, although present, is somewhat thinned and shows no folds. The submucosa is present as a narrow zone, while the muscularis will be found to vary greatly in thickness according to the portion examined. Close to the opening into the intestine the muscular coat will be found of practically normal width. It nevertheless rapidly decreases in thickness until the farthest point of the diverticulum is reached, at which locality the muscle, particularly the outer longitudinal layer, almost disappears. In some instances distinct fenestra have been described as being present in the muscularis.

As to the causation of these diverticula various theories have been advanced. One of these, first mentioned by Grasser,[1] is that there is a distinct area of lessened resistance at that point where the blood vessels pass from the mesentery to the intestine. As the internal pressure increases there is a constant tendency of the wall to give at the above-mentioned area, particularly as the vessels are surrounded by a certain amount of fat-bearing connective tissue. In this way the local dilatations occur. There are though some marked weaknesses in this theory, insomuch that diverticula are found on the convexity of the intestine; also that, if the above were the explanation, muscular tissue would not be found in the wall, which we would expect to consist of mucosa, submucosa and serosa. If diverticula were due to an increase of the internal pressure in the intestine they should be found more frequenty, especially in those cases in which there had been a history of long-continued constipation. Such is not the case. In an article by Beer[2] the question of internal pressure is very fully discussed and it is there shown that such conditions have in all probability very little to do with the matter.

Gordinier and Sampson[3] report one case in which during operative procedure thirteen diverticula were found in the small intestine, all on the mesenteric border. These bore a very definite relation to the larger blood vessels passing from the mesentery to the intestine, as in every instance a large blood vessel extended over the surface of the diverticulum. Apparently, they all consisted of serosa, submucosa and mucosa, the musculature being absent. They were therefore considered as hernial protrusions of the muscosa and submucosa through a weakened spot in the wall of the intestine and beneath the serosa of the mesentery.

The objection to the above case is that there was no microscopic examination made and consequently no proof that the muscularis was absent, it not being possible to detect the presence or absence of the muscle by the naked eye.

Leube, quoted by Brewer,[4] also considers diverticula to be hernias of mucous membranes and says they occur most frequently along the mesenteric border of the bowel.

Another view is that they are due to an abnormal congenital arrangement of the muscular layers of such a character as to weaken the intestinal wall, thus allowing the localized dilatations to occur. The argument against this is that such conditions have been found in adult life only. It seems hardly probable that such a status could exist for so many years without giving some evidence that would be discovered at autopsies held on the young.

Both Telling[5] and Beer[2] believe this condition to be due to pathologic changes occurring late in life rather than to an abnormal congenital malformation of the muscularis. Schreiber, quoted by Beer, considers them due to a weakness or a deficiency of the muscular tissue. In this relation two cases cited by Thomson[6] are of interest. In these the diverticula were the result of localized disease of the ileum, tuberculosis in the one and possibly cancer in the other.

The clinical importance of this condition, as already stated, is gradually being appreciated and at present there are a number of instances reported in which diverticula have caused serious symptoms.

As has been noted, the diverticula are as a rule flask-shaped, the small end being at the opening into the intestine. This in itself allows the intestinal contents not only to gain access readily but also renders it a matter of difficulty for them to escape after having once entered.

The retention of the materials is encouraged by the fact that the muscular coat, weakened to begin with, has gradually become more atrophic as a result of the entrance of the intestinal contents into the sac, this slight but constant pressure tending further to stretch the muscular wall and consequently to diminish its ability to empty the diverticulum. As the contents remain they tend to become more and more solid until the dilatation is filled with a mass of fecal matter acting in the nature of a foreign body.

This stagnation naturally tends to bring about inflammatory changes of greater or less degree. In the great majority of instances nothing serious ensues, but, as can readily be appreciated, the possibility of dangerous lesions is not remote. As the walls of these diverticula are very thin it is not a matter of difficulty for the inflammatory processes to extend, these changes causing trouble in various ways. Neighboring structures may be involved, adhesions may be formed with consequent obstruction of the intestine or perforation may occur with its concomitant symptoms. These, however, belong more to the realm of surgery and will not be entered into.

The case in connection with these remarks was one in which multiple diverticula of the small intestine were accidentally found at autopsy. The patient was a white woman, seventy years old, suffering from a very extensive epithelioma of the face. When the intestines were examined there were found in the upper part of the ileum, about three feet from the pylorus, about twelve diverticula extending between the layers of the mesentery. These varied greatly in size, from less than 1 cm., to the largest, which was 2 cm. in thickness, 4 cm. in length and protruded 3 cm. beyond the intestinal wall. In all instances the diameter of the opening into the intestine was considerably less than the greatest dimension of the diverticulum. Large blood vessels passed over some portion of the dilatations but the impression given was that there was no causal relation. All the diverticula were distended with semisolid fecal matter.

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[1] Grasser: München. med. Wchnschr., 1899, No. 22.

[2] Beer, E.: Am. Jour. Med. Sc., 1904, cxxviii, 135.

[3] Gordinier, H. C., and Sampson, J. A.: Diverticulitis (Not Meckel's) Causing Intestinal Obstruction, The Journal A. M. A., May 26, 1906, xlvi, 158.

[4] Brewer, G. E.: Am. Jour. Med. Sc., 1907, cxxxiv, 482.

[5] Telling, W. H. M.: Brit. Med. Jour., 1908, ii, 1346.

[6] Thomson: Brit. Med. Jour., 1908, i, 623.

The microscopic examination of one of the smaller diverticula showed that the cavity communicated with the intestinal canal by means of a small opening. The inner lining was composed of very thin layer of mucosa which in no place presented any folds. The submucosa was almost completely obliterated, the major part of the wall being formed of circular muscle fibers covered by serosa. The bundles of longitudinal muscle were absent except at the very base of the diverticulum.

The blood vessels in the wall were numerous but small and flattened to a considerable extent. They were all filled with blood.

A few scattered small round cells were visible in the submucosa but not in sufficient numbers to indicate any inflammatory reaction.

The general appearances were such as would suggest that the dilatation was due to the presence of an area in the muscular tissue that was unable to perform its duties. As a result there occurred a gradual distention with the disappearance of the longitudinal muscle and a thinning of the circular fibers, this becoming more marked the larger the localized dilatation.

The conclusions drawn from the examination of the case described above and a review of literature are that acquired diverticula of the intestine appear in late life as a result of localized weakened areas in the muscular tissue.

There does not appear to be sufficient evidence to warrant the assumption that they are due to congenital abnormalities of the muscularis. Such conditions, moreover, have never been reported as having occurred in childhood.

The theory that they are the result of a relaxation of the intestinal wall at the point where the blood vessels enter also does not seem warranted, particularly as they have been found on the convex surface of the bowel and also as their walls contain muscular tissue. This latter should not be present if the diverticula were merely hernial protrusions of the mucosa and the submucosa.

The weakening of the muscular coat in adult life, the theory advocated by Beer and Telling, seems therefore the most reasonable.

THE SYSTEMATIC EXAMINATION OF THE URINE FOR THE RARER ALBUMINOID BODIES

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A number of bodies more or less closely resembling serum albumin are at times to be found in the urine, and, while albumin is, of course, always looked for, and the rarer substances resembling it (with the possible exception of nucleo-albumin) are seldom present, yet there can be little question but that even when they are, they are as often overlooked as noted. Of late years the reactions pertaining to this class of rarer bodies have been rendered easily available through collection in standard works, but it would seem that more attention might have been given to plans for a systematic examination of urine for all albuminoid bodies. Great ingenuity has been displayed in devising "tests" by which, if anything but the substance sought is present, the analyst will not find it. The systematic covering of ground that will show something out of the ordinary when such exists, however, has been neglected. This lack of system is unscientific and the methods more complicated than necessary, as it is only requisite to use—in proper order—reactions already well known, to classify on a working basis all recognized albumin-like bodies to be found in the urine.

I have used the following scheme of analysis in the main for the past six years as a matter of routine. No claim for originality is made for any single step; there is nothing but a grouping of well-known reactions, by which the presence of urinary proteins will be detected. It is in no sense a complete scheme of analysis and aims only to classify broadly, leaving the final identification of the substance a matter for full study based on some standard work or works on clinical diagnosis.

Any examination for bodies of this class presupposes chemically pure acetic acid and clear urine; if the urine is turbid and the matter in suspension passes through the filter-paper, it will be well to mix with the urine a small quantity of magnesium carbonate in fine powder, allow the mixture to stand for a few minutes, and then filter; this, with possibly one or more repetitions, will give a clear specimen.

No. 1.—A portion of the clear urine in a test-tube is acidified with acetic acid; a clouding indicates nucleo-albumin. If a precipitate forms, it should be filtered.

No. 2.—A. A portion of the filtrate from No. 1 (or if No. 1 be negative, the clear acidified urine) is added slowly to a portion of a saturated solution of common salt, a precipitate may be any of the following—any albumose (except deutero-albumose), histon or globin.

B. If a precipitate is not formed, the addition of urine is continued until it is in excess of the salt solution; the upper third is shaken and boiled; a clouding indicates serum albumin.

C. If a precipitate is formed, it should be filtered, care being taken that the urine has not been added beyond the point at which it is saturated by the salt solution. The filtrate should be boiled. A clouding indicates serum albumin.

D. If a positive reaction is had in A, it is my practice first to saturate a portion of the original urine with saturated salt solution without adding acetic acid, to determine whether a precipitate is formed in neutral solution, and, second, to determine whether the body present is one of which loosely combined sulphur is a characteristic, using Boston's method.[1] (By this method equal parts of urine and saturated solution of salt, rendered strongly alkaline with potassium hydrate, are boiled in the upper third, and 10 per cent. lead acetate added, drop by drop, while the boiling continues, a heavy black precipitate showing loosely combined sulphur.)

No. 3.—A few drops of the original urine are added, a drop at a time, to a considerable quantity of clear water. Milky streaks in the track of the drops indicate globulin (Roberts' method).

No. 4.—A. A portion of the original urine is acidified with acetic acid and filtered; the filtrate is then rendered faintly alkaline with ammonium hydrate and boiled for a few minutes, then filtered. The filtrate may contain peptone or deutero-albumose.

B. The second filtrate from A is saturated with ammonium sulphate and boiled. A white precipitate indicates deutero-albumose (yellow or brownish ammonium urate).

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[1] Boston: A Rapid Reaction for Bence-Jones Albumose, Am. Jour. Med. Sc., April, 1903.

C. B is filtered and filtrate examined for peptone; if deutero-albumose has been found, the saturation with ammonium sulphate must be complete and the boiling decided to assure its separation.

The reasons for the steps outlined are:

Of the class of bodies under consideration nucleo-albumin alone is precipitated by acetic acid; hence the step in No. 1.

The remainder of the class with the exception of serum albumin, globulin, deutero-albumose and peptone, are, in the presence of acetic acid, precipitated by the addition of sodium chlorid to saturation. It will be noted that one has as a result of step No. 1 a clear acidified urine, and if this is added slowly to a saturated solution of salt it follows that the conditions of the above proposition are fulfilled, as the salt is present to saturation until urine is added to excess. Among the bodies reacting to this step (No. 2, A) will be found the rarest and most interesting of the entire class.

Saturation with neutral salt precipitates a part of the group only; hence the step in No. 2, D, by which a further subdivision is effected.

Among the bodies giving the sulphur reaction is found the interesting Bence-Jones albumose.

Of the four bodies that may remain in solution after saturating the urine with sodium chlorid in the presence of acetic acid, peptone and deutero-albumose are soluble in hot or cold solution, irrespective of the presence of sodium chlorid or acetic acid. Globulin is held in solution by acetic acid; therefore only serum albumin can be precipitated by heat in No. 2, B and C.

Of the bodies that may be in solution in the original urine, globulin alone will be thrown down by diluting with water; hence the Roberts test.

In No. 4, A, the urine is cleared of possible nucleo-albumin by acetic acid and filtering, neutralized that globulin, if present, may not be carried over, and boiled; deutero-albumose and peptone remain in the filtrate, the deutero-albumose is thrown down by saturating with ammonium sulphate (if present), and removed by filtering, when any remaining protein must be peptone.

The foregoing, no doubt, sounds complicated, but in reality it is not, as in the vast majority of cases nothing, unless it be serum albumin, will be found. Even nucleo-albumin in appreciable amounts is a rarity. In the average case one acidifies a little urine in a test-tube, adds it slowly to some saturated salt solution in another tube (with a negative result in both cases), continues the addition of the urine until it is in excess, shakes and boils in the upper portion, demonstrating serum albumin if present. It takes but a moment more to add a few drops of the filtered urine (original) to water in order to test for globulin, and the analyst has demonstrated that with the possible exception of deutero-albumose or peptone (which he may look for or not, as he sees fit) no albumin-like bodies are present.

On the contrary, if some one of the rarer albuminoids is present, particularly if among the albumoses, it may require considerable work to identify these. The details of such examinations are beyond the scope of the present paper, and must be worked out for the case in hand.

It will be noted that the scheme of analysis proposed is little else than a modification of Purdy's[2] salt and acetic acid test for albumin, but with the order in which the reagents are added reversed, thereby inviting the reactions the original method seeks to obscure.

140 West Oak Street.

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[2] Purdy: Practical Urinalysis and Urinary Diagnosis.

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

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MINERAL ASTRINGENTS (Continued)

Cerium oxalate is a much over-lauded and over-estimated gastric sedative. It is an insoluble salt, and the powdered drug often contains hard crystals. It is possible that irritation from it may stimulate to normal secretion an anemic stomach. In other words, slight irritation from it would be the only possible reason of its doing any good whatsoever in reflex vomiting in which the mucous membrane of the stomach was anemic. Any other mechanical irritation would do as well. It is a prolonged and perpetuated fallacy to believe that it is a specific in vomiting of pregnancy. Other drugs that are used with it, or the inherent tendency to improve later in the day, or in a few weeks to get over such nausea, is the reason that it has so long been believed to be of value.

As an astringent in inflamed conditions of the mucous membrane of the stomach it is vastly inferior to bismuth preparations, and to be of any value it must be used in doses as large as those used of bismuth preparations, viz., 0.50 to 1.0 gram (7½ to 15 grains). The dose of 0.05 to 0.20 gram (1 to 3 grains) generally prescribed is really absurd, and can only do good psychologically. This drug is not needed in the next Pharmacopeia.

There is no use for lead internally, except possibly as an astringent for the intestines in chronic inflammation, but it is the general belief that other astringents are much better and safer. In other words, probably lead should not be used at all internally. If it is used, acetate of lead is the only preparation given internally, and the dose is 0.065 gram (1 grain). Externally the liquor plumbi subacetatis, well diluted, may be used as a sedative astringent lotion to an inflamed, irritated skin where there are no raw surfaces for absorption. The official liquor plumbi subacetatis dilutus is too weak to be of any value, and should be omitted from the Pharmacopeia, as the liquor plumbi subacetatis may be diluted to meet any strength desired. This is a 25 per cent. solution of lead acetate, and should be diluted, depending on the part to which it is applied, to from 5 to 10 per cent. of it, in water.

There is no need for the iodid of lead, and it should be omitted from the Pharmacopeia. The same is true of lead nitrate and lead oxid.

STOMACHICS

The drugs used to increase the appetite are mostly bitters. While any bitter will cause such stimulation, whether the drug is an alkaloid or one with strong systemic activities, the pure stomachics are generally selected for this purpose, and are what is termed the "simple vegetable bitters." There are too many of such in the Pharmacopeia. Small doses of much-used and well-known drugs are entirely sufficient for the purpose desired.

One of the best of these is the compound tincture of cinchona, in teaspoonful doses, taken with a little water, before meals. If a larger quantity of the bitter is desired, it is well to select an elixir of calisaya, in tablespoonful doses, in water, before meals. Large quantities of any bitter are not advisable, as it has been shown that, while they stimulate the taking of food, they really inhibit digestion.

Another excellent stomachic is the compound tincture of gentian, in teaspoonful doses, before meals.

Another simple bitter tonic is the tincture of nux vomica, in doses of from 1 to 3 drops, in a wineglass of water, taken before meals. There will be no strychnia stimulation from this small dose of nux vomica, but the bitter is as effective as that of any other stomachic.

Salicin, in small doses, from 0.25 to 0.30 gram (4 or 5 grains), taken before meals, has been considered a good bitter tonic. This has also been supposed to have some slight antirheumatic powers; but, if rheumatism is really present, stronger antirheumatics are needed.

The frequent tonic combination of a capsule containing arsenic, strychnia, iron, and quinin is of value as a bitter tonic, because the quinin is excreted more or less in the saliva, and, by the time for the next meal, food, and especially water drunk, will give a bitter taste in the mouth, and will have all the desired effects of a bitter tonic. The whole four, or any two or three of these drugs in combination, makes a valuable simple tonic, as:

℞.	gm.			
Arseni trioxidi		04		
Strychninæ sulphatis		04	āā,	gr. 2/3
Ferri reducti	1		or	gr. xv
Quininæ sulphatis	2			gr. xxx

M. et fac capsulas siccas 20.

Sig.: A capsule three times a day, after meals.

It should be remembered that, because a patient has no appetite, is not a positive indication that a bitter tonic before meals is needed, or advisable. If a patient has gastritis, bitter tonics before meals are inadvisable, as such will increase his aversion to food. The inflammation must be first subdued, and he will do better with bismuth and soda before meals as a stomach sedative than with a bitter tonic before meals.

Not a small part of the good effects of the bitter tonic taken before meals is probably due to the stimulation of the alcohol which they contain. In other words, a patient takes, or is given, a cocktail. This little amount of alcohol is probably often of benefit and can do no harm, but to advise a patient, except in rare instances, to take a little whiskey or other alcohol before meals as a stomachic is reprehensible. In the first place, the good that it does is only temporary, and the harm that it may do may be permanent. In the next place, even the amount of alcohol thus taken may be sufficient to inhibit the digestion for hours, although a little alcohol may make the digestion more rapid. A little bitter sipped through a meal, as a little port or stout (and this means a small glass of each), may be in some instances advisable, but the advisability of such treatment should be carefully decided on.

When it is considered that something to stimulate the appetite is needed, as above stated, the presence or absence of gastritis must be determined, and, if present, the loss of appetite must be very differently treated from loss of appetite from an anemic condition of the stomach. It should also be determined whether there is an increase of hydrochloric acid in the stomach or a diminution of it. In the first instance, a regulation of the diet with a more or less complete withdrawal of salt from the food, the administration of plenty of water, and the taking of more oils and fats (cream, butter and olive oil) will improve the condition. If there is a diminished secretion of hydrochloric acid (and many times an increase or diminution may be determined without recourse to the test breakfast), the administration of 5 drops of dilute hydrochloric acid, in one-third of a glass of water, three times a day, after meals, will markedly increase the appetite.

There are a number of other simple bitters which are not needed in the Pharmacopeia. No one of them can do anything in the stomachic line that cannot be done by the drugs and preparations above named. Berberis is not needed; nor is its fluidextract. Calumbo may be omitted as well as its fluidextract and its tincture. Chirata and its fluidextract should not be in the Pharmacopeia.

The multiplicity of useless and needless preparations should be omitted. There is no need of fluidextract of cinchona; and, while speaking of this, it may be stated that there is no need for cinchonin sulphate, and, since quinin has become so cheap, probably cinchonidia is not needed, as it is probably doubtful that when there is idiosyncrasy against quinin there is no idiosyncrasy against cinchonidia.

Eucalyptus and its fluidextract are not needed. The oil of eucalyptus and eucalyptol will do all, medicinally, that eucalyptus can do either as stomachic, antiseptic, or expectorant.

It seems unnecessary to standardize and load up the Pharmacopeia with crude drugs that are never assayed in drug stores, are rarely found there, and are probably not assayed by pharmaceutical firms. The main object is to have the preparation, the oil of eucalyptus for instance, up to the standard required by the Pharmacopeia, and this is the preparation generally that is found in drug shops. These remarks about eucalyptus are equally true of a large number of the Galenic drugs.

The only use for quassia to-day is as a rectal injection of a fresh infusion when pinworms are present. There is no necessity for the fluidextract of quassia, the tincture of quassia, or the extract of quassia. In fact, the extract of any bitter tonic, for internal administration, defeats the object for which it is administered, as unless the pill or capsule is dissolved in the mouth, the bitter taste is lost, and in the stomach it is inactive. This would render the extract of gentian unnecessary in the Pharmacopeia.

Serpentaria and its fluidextract are not needed. Taraxacum (dandelion) and its extract and fluidextract are certainly not needed. It has no peculiar properties different from any other bitter, and it is probably much inferior to the bitters above recommended.

Hydrastis has no wonderful peculiar healing properties to the mucous membrane of the stomach. It is disagreeable to take, and has nothing to recommend it over other simpler and pleasanter treatments. Externally, on mucous membranes, its fluidextract and its decolorized fluidextract have been used as injections for the urethra, vagina, etc., but its value is doubtful. There is no need for the tincture.

(*To be continued*)

The Humanity of Animal Experimentation.—Millions of animals, birds, and fishes are tortured and slain every year to provide food, clothing, and mere sport for mankind, and the zoophilists say nothing; but when a few hundred or a thousand animals are sacrificed for the sake of knowledge that will save the lives of countless children and avert destructive epidemics, a cry of pain goes up, and the lawmakers are prayed to arrest the progress of medical science. They will not do it, of course, they cannot do it, for the great mass of humanity is sane, but the periodical agitation against animal experimentation is none the less distressing to the lovers of their kind.—*New York Medical Journal.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, JANUARY 15, 1910

THE WASSERMANN REACTION IN PROSTITUTES

The wide-spread influence of syphilis on human pathology was well appreciated before we had the help of serologic methods of diagnosis; but with the added ability to diagnose masked and latent syphilis conferred by the Wassermann method and its modifications, we find that our views of the importance of syphilis were under the mark more often than ever.

A somewhat unusual application of the serum reaction is in the study of the occurrence of syphilis in prostitutes, and the results are of much significance. Of one hundred registered prostitutes in Cologne investigated by Dreyer and Meirowsky[1] the presence of syphilis could be established by the history in fifty-six, of whom but one showed manifest lesions at the time of the examination. Among the forty-three remaining who gave neither history nor clinical evidences of syphilis, no less than thirty-two gave a positive serum reaction for syphilis, while forty-five of the fifty-six women known to be infected reacted positively. From this it would seem that, although a very small proportion of prostitutes will show active syphilitic lesions when examined, yet in reality from 83 to 89 per cent. are or have been infected. Furthermore, in this series, of the few that were not syphilitic, none had been registered more than three years, and all but three had been registered for less than a year; this agrees with the experience of Sperk with the registered women of St. Petersburg, that scarcely any of the prostitutes of that city escape syphilis. It would seem doubtful, therefore, if a natural immunity to syphilis often, if ever, exists, since practically every prostitute acquires the disease within the first three years of her exposure.

These observations also emphasize the frequency of lues ignorata, which is known to be especially common in women, since in thirty-two of the eighty-nine positive cases of syphilis no history of its manifestations could be obtained. It is well known that a time comes for each syphilitic when spirochetes are still present which may do the host harm, but which seldom are transmitted to others; and by thousands of observations it has been established that this infectious stage has an average duration of three or four years. This fact must be taken into account in considering the results of syphilis in prostitutes, for it is certain that not all of them transmit infection all the time that they give positive serum reactions. On the other hand, the absence of manifest lesions of syphilis certainly does not prove inability to infect, since but two of the eighty-nine syphilitic women in this group showed lesions on examination. Those physicians who are responsible for examination of prostitutes in communities where legal regulation of prostitutes is established have a difficult task to find the limits of the region of safety in view of such wide boundaries as are offered by the 2 per cent. of women with active lesions and the 83 to 89 per cent. with positive serum reactions; while anyone who is called on to decide the question of fitness of a syphilitic for marriage will find food for reflection in these statistics.

A NEW TREATMENT OF SPASTIC PALSIES

Nowhere in neurologic medicine has the physician felt himself more helpless in alleviating human ailments than in the treatment of spastic palsies, especially of children. Once the severe brain injury is induced at birth, rigidity and deformity, and perhaps idiocy, result with more or less certainty. To remedy these effects the general surgeon has endeavored to remove brain clots in infants at the time of meningeal hemorrhage; the pediatrist has striven unequally by hygienic training to ward off the blight of subsequent non-development; and the orthopedist employs various ingenious devices and operations against segmental deformity and palsy. Their efforts have been followed by a measure of success but no great relief, and spasticity especially has always been least relieved. Further, while cutting the motor part of the reflex arc relieves contraction temporarily, it produces complete paralysis of muscles involved. Section of peripheral nerves cuts off both motor and sensory impulses. Even injection of alcohol into isolated nerves (as suggested by Schwab) is found inadequate for the permanent relief of spasticity. The desideratum was a measure which would afford cortical rest and spastic release at the same time.

A new method of treating spastic conditions has recently been devised, namely, resection of the posterior spinal nerve roots. This bids fair to mark a decided advance in neural surgery and is worthy of more than passing notice. It is generally admitted that the degree of muscle tone in an extremity is determined by the sensory impressions from the parts and especially from the muscle spindles. Tonic spasm in a muscle or limb may be regarded as an augmented degree of this state due to various causes. In the cerebral palsies of children there is, as a result of damage and destruction of the superior pyramidal tracts, a twofold motor disturbance in the extremities, namely, both a contraction and a weakness of various muscles. Most of the operations thus far devised for relief of this have been undertaken to restore the proper balance in the lower spinal reflex arc. That there is present in these cases a diminished motor supply to the muscles and a full sensory influx to the cord seems to be obvious. But why surgeons should have addressed themselves so unanimously to the motor side is not so easily understood. Muscle stretching and fixation, muscle and tendon cutting, muscle transplantation and even neuroplastic operations have all been employed with the object of either weakening the peripheral or heightening the energy of the cortical motor neuron, and never addressed to the sensory side. The long-known fact that the reflexes are lost when tabes supervenes on a pyramidal tract lesion should have paved the way earlier, perhaps, for a solution of the spastic problem in cerebral palsies. It was really pointed out several years ago, by Fraenkel and others, that relief from spasticity was possible from the sensory side. Fraenkel noted that the moderate injection of stovain in the spinal canal in a helpless diplegic boy enabled the patient to walk about for a few minutes during the action of the drug.

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[1] Drever and Meirowsky: Deutsch. med. Wchnschr., 1909, xxxv, 1698.

Foerster and Tietze[1] of Breslau, however, were the first to add a sensory disorder to an existent motor disease, in order to restore the balance in the lower spinal reflex arc in spastic palsies. Two years ago they resected posterior spinal nerve-roots in five cases of spastic paraplegia. Their work was closely followed by Gottstein[2] in two cases, by Clark and Taylor[3] of New York in three cases, and later by Spiller and Frazier[4] of Philadelphia. The results thus far from these operations have been surprisingly good. Foerster and Tietze, and Gottstein, removing alternate sensory roots in the lumbar enlargement, obtained a lessening of spasticity. Apparently their after-treatment was poor and inefficient for various reasons. In conjunction with the Clark-Taylor operations, Taylor used a unique method of approach to the spinal cord roots, devised by him, namely, unilateral laminectomy. This is a quick and comparatively bloodless operation and affords a good view of the nerve roots and cord. Even the nerve-roots of the opposite side can be easily reached in this operation. Several consecutive roots were cut either in the cervical or lumbar enlargements, depending on the part to be relieved. Data are at hand to show that this operation permanently relieves spasticity. Isolated movements, such as adduction and flexion of the foot, are again possible, and neither atony nor loss of reflexes supervenes. There is evidently need of careful selection of patients for this operation. The relation of spastic and paretic elements should be carefully noted in each case; also the degree of cooperation which the patient can provide, for the important after-treatment of reeducation of muscle movements, hygienic training, etc.

The considerable overlapping in the skin of the segmental supply of individual nerves is shown in a case of Clark and Taylor's in which, after resection of the twelfth dorsal to the fifth lumbar roots, inclusive, no loss in sensation could be detected. It will be interesting to note the effect of sensory root resection in those hemiplegics in whom epilepsy has been superadded. The latter disease ought to undergo modification if the old conception that hemiplegic-epilepsies are due to an excess of sensory influx from the periphery is accepted.

All the workers in this special field of neurologic surgery insist on the importance of after-care and training. Myotomies and tenotomies may still be required for contractures, which, of course, are not relieved by removing spasticity. The whole work is novel and unique in neurologic surgery. And while it is hardly beyond the experimental stage, it merits our earnest attention and support, as being the most comprehensive and fundamental conception of spastic palsies and their surgical betterment which has been brought forward in recent years.

ELECTRIC SLEEP

From time to time articles have appeared in the lay press on the application of electricity for general anesthesia; and the idea has been so novel that naturally it has attracted attention. Though highly colored, these reports have had some basis in the experiments of Stéphane Leduc, professor of physiology in the medical school at Nantes, described more fully in The Journal, April 6, 1907, page 1221.

Before Leduc's work it had been demonstrated by Erb in 1867 that electric currents could be made to pass into the brain-substance. Erb's work was done on the cadaver, the skull being opened and a small galvanometer placed within the brain; passage of the current invariably deflected the galvanometer. Fritsch and Hitzig later showed the regional excitability of the brain to the current, but it remained for Leduc to demonstrate in 1902 the possibility of the electric penetration of the intact cranial vault. He accomplished this result by means of a wheel interrupter so arranged that it delivered a series of successive shocks, each of one one-thousandth of a second duration, a passive period intervening of nine one-thousandths of a second. In the lower animals he produced with this current an inhibition of the activities of the cerebral centers, leaving the respiratory and circulatory centers intact, thus causing a condition characterized by loss of voluntary movements and the presence of general anesthesia, to which he gave the name "electric sleep."

If a general anesthesia could be safely and readily induced in the human being by the electric current it would seem to have certain advantages over drug narcosis. If the Leduc current could produce readily and invariably a safe general anesthesia, if it could be accurately regulated as to dosage, and if it left no unpleasant sequelæ, it would, indeed, be welcomed in the operating-room.

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[1] Foerster and Tietze: Ztschr. f. orthop. Chir., Oct. 22, 1908.
[2] Gottstein: Berl. klin. Wchnschr., 1909, No. 17.
[3] Clark and Taylor: Paper read at the New York Neurological Society and at the New York Pediatric Society, October, 1909.
[4] Spiller and Frazier: Paper read at a joint meeting of the Philadelphia and New York Neurological Societies, December, 1909.

It was with the purpose of applying the current, if possible, to practical surgical work that Dudley Tait and Raymond Russ[1] began a series of experiments a year ago at the University of California Hospital. Prior to their work the problem had been studied principally from the physiologic point of view by Leduc, whose experiments were subsequently repeated by Robinovitch of New York. Tait and Russ found that in certain instances they could obtain a satisfactory anesthesia in the lower animals, but that the difficulties of manipulation were so many that they did not allow the application of the method in animal experimentation. In dogs they were able to produce, by means of this current, a general analgesia without loss of consciousness; this they tested many times by cutting down on the large nerve trunks and clamping them with hemostatic forceps—the supreme test for analgesia. The method was not without its dangers, and they found that respiration could be easily stopped by a sudden change in current strength or by certain positions of the terminal electrodes.

After trying the action of the current on themselves, they carried out their experiments on others, but in none of the twenty-four trials on man were they able to obtain any phenomena suggestive of sleep. In one man they obtained a general cutaneous analgesia with a very low strength of current. Many experiments were performed to rule out the psychic element which was thought to be present. On one occasion, analgesia having been established, an extensive incision was made for a phlegmon of the hand.

While the applications of this peculiar current as yet have but little practical value, they are not without scientific interest.

MEDICAL EDUCATION IN BRAZIL

It has been generally known that in Spanish-American countries the necessity for maintaining a high standard of professional education in both law and medicine was early appreciated, and that the laws regulating these questions were carefully drawn up. A good preliminary education, sometimes even a university degree, was required for admission to the medical department of universities and five years of the study of medicine demanded, though this was afterward increased in some of the countries to six and even seven years of required medical study. We have known less about the Portuguese portions of America because the language is less familiar to Americans of English descent, as a rule, than Spanish. Some interesting information on this subject has been supplied by the sketch of "The Evolution of Medicine in Brazil," which was read before the Fourth Latin-American Medical Congress, held in Rio de Janeiro last August.[2]

As everywhere else in South America and in Mexico, the first colonists from Europe found a much higher state of medical knowledge among the natives than they expected. It was not long before the educated men who came to Brazil found that the Indians possessed knowledge of drugs, efficient for the cure of the special diseases of the country, which were unknown in Europe. A careful study by missionaries of the various remedies employed by the Indians led to the discovery of several important drugs, including cinchona. Some of the missionary letters and histories contain details as interesting as any we have with regard to corresponding matters in Mexico and other portions of Spanish America. In Rio de Janeiro for several centuries, practical lessons in the care of patients were given in a hospital located on the site now occupied by the Misericordia Hospital.

During the eighteenth century there was very close intercourse between Brazil and the mother country and most of the physicians of Brazil were graduates of the University of Coimbra in Portugal. At the beginning of the nineteenth century a school of surgery was founded at Bahia; and in 1808, with the transfer of the capital from Bahia to Rio Janeiro, a school of anatomy, surgery and medicine was founded in the latter city. The decree of foundation declared that it was for surgeons who did not know anatomy, physiology and medicine, as well as for those who proposed to become physicians. At this time five years of medical studies were required and the candidate had to have a definite amount of preliminary education. Each twenty years thereafter an increase of the required studies was made. In 1832 a law was passed requiring that medical students should know Latin, French or English, philosophy (under which term physics was then included), arithmetic and geometry, and that there should be six years of medical studies. During the first year medical physics, botany and the elements of zoology were studied; during the second year, general and descriptive anatomy, medical chemistry and mineralogy; during the third year, anatomy and physiology; during the fourth year, external and internal pathology, materia medica and pharmacy; during the fifth year, operative medicine, the use of instruments in labor and the diseases of women and of the new-born; and during the sixth year, legal medicine, hygiene and the history of medicine. Clinical surgery and clinical medicine occupied a good many hours during the last three years of the course. In 1854 the departments of the medical school were increased from fourteen to eighteen and in 1882 to twenty-six. In 1891 toxicology and clinical teaching were required by law.

In a word, the medical teaching in Brazil throughout the course of the nineteenth century has maintained a high standard of professional knowledge and has made the Brazilian physicians, as a rule, men of scholarly attainments and thorough training. Dr. Senn noted this high standard in all parts of South America, and particularly in Brazil. From a lack of legal regulation we missed a corresponding development in the United States and have had to crowd into a short quarter of a century most of our advance. Now that the work has been taken up, however, the reports of what was accomplished in other countries, and American countries particularly, must prove a valuable incentive.

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[1] Tait and Russ: Electric Sleep, The Journal A. M. A., Nov. 13, 1909, p. 1611.

[2] Esboço Sobre a Evolucao da Medicina no Brazil, Rio de Janeiro, Imprensa Nacional, 1909.

Medical News

DISTRICT OF COLUMBIA

Bust Presented to Smithsonian.—As a memorial of the introduction of anesthetics in surgery, Dr. William James Morton has presented to the Smithsonian Institution a bronze bust of Dr. William T. C. Morton.

Personal.—Dr. W. P. H. Habel, resident physician of Casualty Hospital, has resigned and will locate in West Virginia, and has been succeeded by Dr. Charles J. Boehs.——Dr. Thomas Morgan, Washington, was knocked down by a street car, January 2, sustaining concussion of the brain and lacerations of the scalp.

Tuberculosis League Meets.—At the annual meeting of the District of Columbia Association for the Prevention of Tuberculosis, the following officers were reelected: Brigadier General George M. Sternberg, M. C., U. S. Army, retired, president; Brigadier General William H. Forwood, M. C., U. S. Army, retired, vice-president; and Drs. William C. Rives, E. C. Schroeder, and James D. Morgan, directors.

ILLINOIS

Fire in Hospital.—A fire, December 19, at the Watertown State Hospital, totally destroyed the amusement hall of that institution, causing a loss of about $10,000. No casualties to patients resulted.

Local Medical Society Organized.—The physicians of Cuba have formed an organization and elected Dr. David S. Ray, president, and Dr. Veda C. Murphy, secretary. All of the practitioners of the city have enrolled as members.

Ready to Turn Hospital Over.—The trustees of the Illinois Western Hospital for the Insane, Watertown, met December 30, and made their final reports and arranged details for turning the hospital over to the State Board of Administration.

To Honor Dr. Webster.—A medical science room in the Evanston Public Library has been established by friends of Dr. Edward H. Webster, in his honor. The room will contain the Christopher Library, the Brayton Collection, and the new endowment provides $3,000 for the support of a library on general medicine, and not less than $1,500, the income of which is to be used for the maintenance of the room.

State Hospital Physicians Dismissed.—The State Board of Administration, on January 4, ordered the discharge of Dr. George W. Mitchell, first assistant physician, and Dr. J. G. Oosterbeck, second assistant physician of the Peoria State Hospital, who were charged with negligence in the performance of duty, and who failed to respond to the request of the state civil service commission for their resignation.

New Charities Commission.—The governor on December 31, reappointed Drs. Frank Billings, Chicago, and John T. McAnally, Carbondale, Rev. Emil G. Hirsch, Chicago, and Messrs. John M. Rapp, Fairfield, and John D. Harris, Champaign, members of the State Board of Charities as the new State Charities Commission. At the first meeting of the commission, held January 8, Dr. Frank Billings, Chicago, was elected president, and Mr. William C. Graves, secretary of the old commission, was appointed executive secretary. The secretary was instructed to map out a plan whereby the work of the commission may reach not only the seventeen state charitable institutions, but beyond to every county poor house and jail in the state.

Reappointments.—Under the new board of administration of charities, the following superintendents of charitable institutions have been reappointed: Dr. Vaclav H. Podstata, Elgin State Hospital; Dr. Frank P. Norbury, Kankakee State Hospital; Dr. Henry B. Carriel, Jacksonville State Hospital; Dr. William L. Athon, Anna State Hospital; Dr. Warren E. Taylor, Watertown State Hospital; Dr. George A. Zeller, Peoria State Hospital; Dr. C. P. Henderson, Chester State Hospital, and Dr. Harry G. Hardt, Lincoln School and Colony.

Personal.—Dr. Percy E. Hofmann, Jacksonville, was accidentally shot through the right foot, January 3, while hunting, the injury necessitating amputation.——Dr. W. P. Short, Mason City, ninety-two years of age, is reported to be seriously ill at St. Clara's Hospital, Lincoln.——Dr. Emil Lofgren has been elected president, Dr. Don A. Vanderhoof, vice-president, and Dr. George P. Gill, secretary-treasurer of the staff of St. Anthony's Hospital, Rockford.——Dr. and Mrs. Walter Ryan, Springfield, have left for the east, and will sail in June for Europe, where they expect to remain a year.——Dr. Thomas M. Aderhold, Ziegler, has decided to locate in El Reno, Okla.

New Factory Law in Force.—The new factory law which requires employers to promote the health, comfort, and safety of their employees, went into effect January 1. The law provides for the protection of employees against machine injury, by enclosed hatchways, elevators, etc.; the keeping of premises in clean sanitary condition, of equal temperature; and with toilet facilities, and prohibits the taking of food into rooms where poisonous substances are present; prescribes the removal of poisonous or noxious fumes as far as practicable, and a report to the state factory inspector of all accidents or injuries resulting in death. Failure to comply with any provision of this act is punishable by a fine of from $10 to $50 for the first offense, and from $25 to $200 for the second.

LOUISIANA

Projected School of Tropical Medicine.—A movement is on foot among physicians of New Orleans to establish a school of tropical medicine at Tulane University. The project has as yet taken no definite form, but is said to be endorsed by the president and members of the faculty generally.

Medical Staff Appointed.—At the recent meeting of the board of managers of Touro Infirmary, New Orleans, the following medical staff was appointed: Department of surgery, Dr. Rudolph Matas, senior; and Drs. Albert J. Mayer, Abraham Nelken, Herman B. Gessner, and Lucien H. Landry, juniors; department of gynecology, Dr. William Kohlmann, senior, and Drs. Milton Shlenker, Jacob W. Newman, and Joseph Conn, juniors; department of medicine, Dr. Joseph D. Weis, senior, and Drs. Isaac I. Lemann, Sidney K. Simon, and Charles L. Eshleman, juniors; department of eye, Dr. Marcus Feingold, senior; department of ear, nose and throat, Dr. Charles J. Landfried, senior, and Dr. Arthur I. Weil, junior; department of skin, Dr. Joseph N. Roussel, senior; department of neurology, Dr. Roy M. Van Wart, senior, and Dr. J. T. O'Ferrall, junior; department of pediatrics, Dr. William W. Butterworth, senior, and Dr. L. R. DuBuys, junior; department of radiology, Dr. James B. Guthrie, senior; department of orthopedics, Dr. Paul A. McIlhenny, junior; and department of pathology, Dr. Frazer B. Gurd, junior.

MAINE

Antituberculosis Association Organized.—Bangor has recently formed the Bangor Tuberculosis Association for the prevention of tuberculosis. The president is Henry L. Griffin, and the consulting board of physicians consists of Drs. Galen M. Woodcock, Daniel A. Robinson, William E. Fellows, William C. Mason, Bertram L. Bryant, William C. Peters, Jarvis B. Woods and Harold H. Crane.

Will Pay Part of Debt.—At a special meeting of the trustees of the Maine State Sanatorium, held in Portland, December 29, an offer was made by a gentleman residing out of the state to pay one-fourth of the entire debt of the sanatorium, provided friends of the institution will pay up the balance on or before March 1, 1910. He furthermore offers provided this debt is paid, to place in the hands of the trustees a large endowment fund for the benefit of the sanatorium. The offer was accepted by the trustees and steps are being taken to raise the desired amount.

MARYLAND

Large Bequest to Hospital.—By the will of the late William E. Watts, Funkstown, who died recently in Baltimore, the Washington County Hospital receives an immediate bequest of $20,000 and a residuary legacy of about $40,000.

The Jewish Home for Consumptives.—The Jewish Home for Consumptives, Reisterstown, now has forty beds, all of which are occupied, and a cottage is to be added in the near future which will increase the accommodation to fifty patients.

Personal.—Dr. J. McPherson Scott was elected president of the Hagerstown Fair Association, January 1, and Drs. W. Preston Miller and Richard H. Smith were elected directors.——Dr. George Wells, clerk of Anne Arundel County Circuit Court, is ill with pneumonia at Annapolis.——Dr. R. A. Shankwiler, assistant resident physician at Eudowood Sanatorium, near Baltimore, has resigned to take a similar post at the Antituberculosis Association Sanatorium, Louisville, Ky., and will be succeeded by Dr. Frederick H. Vincup.

Baltimore

Personal.—Dr. Pierce B. Wilson has returned from Europe.——Dr. Alexander Spear fell from a car January 1, injuring his side and leg.——Dr. C. Hampson Jones, assistant health commissioner, fell on the ice January 5, fracturing a rib.

Additional Accommodation at University Hospital.—The large wing formerly used for a nurses' training school at the University Hospital has been converted into private rooms and wards for maternity patients. One floor is reserved for patients of the Baltimore and Ohio Railroad. By these changes the capacity of the hospital has been increased by about one hundred.

Tuberculosis Nurses at Work.—The nurses authorized by the city council to take up the work against tuberculosis in the health department began their work January 3. The city is divided into fourteen districts and each nurse is given authority to enter houses and enforce the regulations of the health department for the prevention and spread of tuberculosis. Each nurse is equipped with sputum cups, paper napkins, etc., and every physician is required to report cases of tuberculosis that the patients may be visited by the nurses.

MISSOURI

Personal.—Dr. Edward H. Skinner, Kansas City, will return from Europe about the first of next month, and will open his *x*-ray laboratory.——Dr. Kearan C. Cummins, Maryville, was seriously injured by a fall from the roof of his residence, December 24.——Dr. B. Clark Hyde, Kansas City, is ill with typhoid fever.——Dr. Harvey E. Moss, Kansas City, suffered the loss of his office furniture and fixtures in a fire which consumed the Rialto Building, December 23.

Society Meeting.—Audrain County Medical Society, at its annual meeting, December 18, in Mexico, elected Dr. Paul T. Coil, president; Dr. Edwin S. Cave, vice-president; Dr. Robert C. Strode, secretary-treasurer; and Dr. Josiah G. Moore, delegate to the state association, all of Mexico.——At the annual meeting of Greene County Medical Society, held in Springfield, Dr. Thomas Doolin, Ash Grove, was elected president; Dr. David U. Sherman, Springfield, vice-president; Dr. Thomas O. Klinger, Springfield, secretary; and Dr. Dexter B. Farnsworth, Springfield, treasurer.——At the annual meeting of Grand River Medical Society, held in Carrollton, December 15, Dr. John L. Burke, Laclede, was elected president; Dr. Rezin C. Shawhan Hale, vice-president; and Dr. Reuben Barney, Chillicothe, secretary-treasurer.

NEW JERSEY

Health Board Elections.—Dr. Clinton D. Mendenhall has been elected city physician of Bordentown.——Dr. James A. Exton has been reappointed health officer of Kearny.——Dr. G. Herbert Richards has been reelected president of the Orange Board of Health, and Selskar M. Gunn, health officer.

Tuberculosis Report.—The managers of the New Jersey Sanitarium for Tuberculous Disease, at Glen Gardner, submitted a report to the governor, December 30. Cures were effected in 30 per cent. of the cases treated, the disease was arrested in 44 per cent., an improvement was shown in 15, and in only 6 per cent. no progress was made. During the year but one patient died.

Fight to Maintain Preventorium.—Nathan Straus, who established a tuberculosis preventorium at Lakewood, against which bitter warfare has been waged, offered, January 9, to give the preventorium $100,000 cash if it would reestablish the preventorium near Lakewood. He also has declared his intention of continuing at the Cleveland Cottage at Lakewood, at his own expense, the work of saving tenement children from tuberculosis.

NEW YORK

Personal.—Dr. Edward H. Pershing, Lawrence, has succeeded Dr. Louis N. Lanehart, Hempstead, resigned, as a member of the medical board of Nassau Hospital.——Dr. Alexander J. Dallas, said to be the oldest physician in Syracuse, celebrated his ninety-first birthday anniversary, December 31.——Dr. Samuel R. Olliphant, Mount Vernon, has been chosen president of the local board of health.

State Medical Society Meeting.—The one hundred and third annual meeting of the Medical Society of the State of New York will be held in Albany, January 26 and 27, under the presidency of Dr. Arthur G. Root, Albany. The address on "Modern Hippokrates" will be made by Dr. Abraham Jacobi, New York City. On the evening of the first day a symposium will be held on "Infections of the Middle Ear of Interest to the General Practitioner." On the afternoon of the second day a symposium on fractures will be held, and the annual banquet will occur on the evening of the second day.

Medical Expert Testimony.—The leading medical organizations of this state and many prominent members of the bar have undertaken to have incorporated into the laws of the state a bill to regulate the introduction of medical expert testimony. This same bill was introduced into the assembly in March, 1909, but there was not sufficient time left to give it due consideration and it failed passage at that session. The bill provides that the justices of the supreme court assigned to the appellate division in the several departments should designate a list of physicians and surgeons in each judicial district who may be called as medical expert witnesses by the trial court or by any party to a civil action in any of the courts of this state, and when so called, shall testify and be subject to full cross-examination as other witnesses are. The bill also provides that when so called experts shall receive for their services and attendance such sums as the presiding judge may allow, to be paid at once by the treasurer or other fiscal officer of the county in which the trial is held. It is stated in the bill that nothing in it shall be construed as limiting the right of parties to call other expert witnesses as hithertofore. The proposed measure is intended only to regulate testimony in criminal, not in civil suits.

New York City

For the Italian Hospital.—Enrico Caruso has sent $2,000 to the Italian Benevolent Institute and Hospital in West Houston street. The benefit performance given at the Metropolitan Opera House January 4 for this hospital cleared $6,500.

Harvey Society Lecture.—The fifth lecture of the Harvey Society course delivered by Dr. Ludvig Hektoen of the University of Chicago, January 15, at the New York Academy of Medicine, is on "Certain Phases of the Formation of Antibodies."

New Tuberculosis Exhibit.—The Charity Organization Society has spent both time and money in enlarging and improving the tuberculosis exhibit which won first prize at the International Tuberculosis Congress at Washington and plans to display this exhibit in every district of the city. It has already been shown in the heart of the East Side, in the financial district and on Fifth avenue near Fifty-fifth street. Lectures and demonstrations are given at stated times and the exhibit is open all day.

Personal.—Dr. William H. Nammack, Far Rockaway, and Walter G. Frey, Long Island City, have been appointed coroners physicians of the Queens Board of Coroners.——Dr. Israel L. Feinberg has been appointed president of the board of coroners and Drs. Philip F. O'Hanlon, Albert T. Weston, Otto H. Schultze, and Timothy D. Lahane have been appointed coroners physicians.——Dr. Charles Phelps has retired as police surgeon and with his wife has sailed for Europe.——The emperor of Germany has bestowed the Order of the Prussian Crown on Dr. Otto G. T. Kilian and the medal and ribbon of the Order of the Red Eagle on Drs. Rudolph C. Denig and Louis Peiser, of the staff of the German Hospital.

Buffalo

Still No Contagious Disease Hospital.—Although the Buffalo Academy of Medicine and the Erie County Medical Society have repeatedly called the attention of the civic authorities to the inadequacy of the facilities for the treatment of contagious diseases, no site has as yet been provided for the hospital, for the construction of which $200,000 was voted by the common council fourteen months ago.

Personal.—Drs. Herbert H. Glosser and James H. Carr have returned from Europe.——Drs. Irving M. Snow and Lesser Kauffman have been appointed a committee by the Buffalo Academy of Medicine to inquire into the prevalence of anterior poliomyelitis.——Dr. George A. Sloan has been appointed attending neurologist of the Erie County Hospital, vice Dr. William C. Krauss, deceased.——Drs. James H. Carr, Thew Wright, and Francis M. McGuire have succeeded Drs. Vertner Kenerson, Edward M. Dooley, and Joseph Burke, resigned as attending surgeons at the Emergency Hospital.——Dr. John A. Rafter has been appointed associate editor of the *Buffalo Medical Journal*, vice Dr. William C. Krauss, deceased.

NORTH CAROLINA

Banquet to Dr. Russell.—The medical profession of Charlotte gave an elaborate banquet, December 21, in honor of Dr. E. Reid Russell, who moved from Charlotte to Asheville, January 1.

Society Meetings.—The annual meeting and banquet of Buncombe County Medical Society was held in Asheville, December 21, and the following officers elected: Dr. Charles S. Jordan, president; Dr. Henry H. Briggs, vice-president; Dr. Caillard S. Tennent, secretary (reelected); Dr. Thomas E. W. Brown, treasurer (reelected); Drs. Lewis B. McBrayer and Eugene R. Morris, delegates to the state medical society; Drs. Marshall H. Fletcher and Martin L. Stevens, alternates; and Dr. M. L. Stevens, censor, all of Asheville.——Wake County Medical Society, at its annual meeting, elected the following officers: President, Dr. Richard H. Lewis, Raleigh; vice-president, Dr. Solomon P. Holding, Wake Forest; secretary, Dr. William C. Horton, Raleigh, treasurer; Dr. Kemp P. Battle, Jr., Raleigh; and delegates to the state society, Drs. Albert Anderson, Raleigh, and James J. L. McCullers, McCullers.——Forsyth County Medical Society, at its meeting held in Winston-Salem, December 14, elected Dr. John Bynum, president; Dr. Aaron Y. Linville, vice-president, and Dr. Eugene P. Gray, secretary-treasurer, all of Winston-Salem.——Davidson County Medical Association, at its annual meeting, held in Lexington, elected the following officers: Dr. Willis J. Vestal, Lexington, president; Dr. Charles M. Clodfelter, Lexington, vice-president; Dr. David J. Hill, Lexington, secretary-treasurer; Drs. Charles M. Clodfelter, Lexington, Charles A. Julian, Thomasville, and William Lee Hill, Lexington, censors, and Drs. Joel Hill, Lexington, Eli J. Buchanan, Lexington, and Robert U. Zimmerman, Enterprise, committee on legislation and public health.

OHIO

Food Preservatives.—The Canton Medical Society at a recent meeting, endorsed the action of the American Medical Association in opposing the use of benzoate of soda or other similar chemicals as food preservatives, and adopted a resolution that the Secretary of Agriculture, the Secretary of the Treasury, the Secretary of Commerce and Labor, Dr. Harvey W. Wiley, Food Commissioner Dunlap, the chairman of the Committee on Legislation of the American Medical Association, and Dr. Charles A. L. Reed, Cincinnati, be severally petitioned to cooperate under the law so to amend food inspection decision No. 104 as to prohibit the use of benzoate of soda in any quantity as a food preservative and to declare all foods so preserved as deleterious and fraudulent under the Food and Drugs Act.

Society Meetings.—The sixty-fifth meeting of the Northwestern Ohio District Medical Association was held at Bellefontaine, December 8 and 9, under the presidency of Dr. Thomas Hubbard, Toledo, and the following officers were elected: Dr. Dana O. Weeks, Marion, president; Drs. Don C. Hughes, Findlay, and George M. Todd, Toledo, vice-presidents; Dr. Edwin A. Murbach, Archbold, secretary (reelected), and Dr. Sidney D. Foster, Toledo, assistant secretary and treasurer. The next meeting will be held at Bryan. The association adopted resolutions favoring a national bureau of health.——At the annual meeting of the Eighth District Medical Association, held in New Lexington, December 2, Dr. William A. Melick, Zanesville, was elected president, and Dr. William E. Wright, Newark, secretary.——Butler County Medical Society, at its annual meeting held in Hamilton, elected the following officers: Dr. George M. Cummins, Hamilton, president; Drs. George D. Lummis, Middletown, William S. Alexander, Oxford, and Clarence C. Wasson, Hamilton, vice-presidents; Dr. Corliss R. Keller, Hamilton, secretary, and Dr. Edward Cook, Hamilton, treasurer.

Personal.—Dr. Charles E. Stadler, West Cairo, was struck by an electric traction car near that town, thrown from his buggy, and painfully injured.——Dr. George R. Love, Toledo, has been reelected superintendent of the Toledo State Hospital.——Dr. W. J. Murphy, Dayton, has been appointed assistant surgeon of the National Soldiers' Home, Leavenworth, Kan.——Dr. Henry Baldwin has resigned from the staff of the Springfield Hospital.——Dr. Joseph H. Huntley, Lima, who recently had his leg amputated as the result of injuries received when his automobile was struck by a train, has recovered.——Dr. Arthur D. Traul, North Robinson, was accidentally shot in the foot while hunting December 4, the injury necessitating amputation of a portion of the foot.——Dr. Bernhard F. C. Becker has been elected health officer of Toledo, vice Dr. James C. Reinhart, resigned.——Dr. Clarence S. Ramsey has been elected president, Dr. James M. Austin, vice-president, and Dr. Emory F. Davis, secretary-treasurer of the staff of the Springfield Hospital.——Dr. William S. Eakman, Ironton, was thrown from his buggy December 28, and seriously injured.——Dr. Charles F. Gilliam, Columbus, has been appointed superintendent of the Columbus State Hospital.——Dr. Frederick V. Dotterweich, Ashland, has been appointed a member of the local board of pension examiners, vice Dr. David S. Sampsell, deceased.

Cincinnati

New Chair Established.—The Joseph Eichberg chair of physiology in the Ohio-Miami Medical College of the University of Cincinnati was formally established December 11, at a meeting of the board of trustees of the Academy of Medicine. An endowment of $45,000 was raised for this chair by the academy and a few friends of the late Dr. Eichberg, and this sum was duly transferred to the university for the establishment of the professorship.

Personal.—Dr. Mark A. Brown has resigned as health officer of Cincinnati, and has been succeeded by Dr. John H. Landis, formerly in charge of food supplies. Dr. Otis L. Cameron has succeeded Dr. Landis in that position.——Dr. Derrick T. Vail has returned after a trip around the world.——Dr. Stephen B. Marvin has been reelected president and Dr. J. Corliss Evans has been elected a member of the board of education, vice Dr. W. Wilson Barber, deceased.

Post-Graduate School Election.—The Cincinnati Polyclinic and Post-Graduate School, at its annual meeting, December 14, decided to reorganize and enlarge its faculty. The election of officers resulted as follows: Dean, Dr. Charles M. Paul; secretary, Dr. Otto Juettner; treasurer, Dr. Louis J. Krouse; registrar and secretary of the board of trustees, Dr. Stark; director of clinics, Dr. Albert E. Hussey, and president of the board of trustees, Dr. Charles T. Souther.

PENNSYLVANIA

Tuberculosis Work.—The Association for the Study of Tuberculosis distributed 251,300 pieces of literature and treated 24,410 patients at a cost to the state of $1,515,664. The state legislature has appropriated $4,000,000 for the work.

School Medical Inspection.—The State Department of Health has authorized medical inspection of the public schools throughout the rural districts of the state. Hookworm, pellagra and infantile paralysis have been placed on the list of diseases to be reported to the health authorities and public funerals of individuals who have died from measles or whooping cough are prohibited until the house is disinfected.

Philadelphia

Personal.—J. Percy Keating was elected trustee of Jefferson Medical College to fill the vacancy caused by the death of Samuel Thompson last September.——Dr. John McCormack was thrown from his carriage when it collided with a trolley car on January 5, but suffered no serious injury.

University May Take Polyclinic.—A committee has been appointed to prepare plans for a merger of the Polyclinic and the University of Pennsylvania. Dr. John B. Roberts, a member of the board of managers of the Polyclinic Hospital, has been appointed chairman of the new committee. In case that the merger is consummated, the university will use the Polyclinic as a graduate school.

Low Death Rate.—According to the health report for the year 1909, issued January 4, there was a decrease of 1,490 deaths from 1908, despite the increase in population, and more than half of this decrease was in the mortality of children under 5 years. The death rate for the year was 15.87 per 1,000 of population. This is the lowest death rate that the city has ever had and shows an appreciable decrease from 1908 (17.16 per 1,000) though the record of that year was also low. Perhaps the best gain was in the decrease of mortality from typhoid fever. In 1908, the death rate from this fever was 35.5 per 100,000 population, the actual deaths being 533. In 1909 there were but 331 deaths, the rate being 21.1.

College of Physicians Election.—The College of Physicans, January 5, elected the following officers for 1910: President, Dr. George E. de Schweinitz; vice-president, Dr. Wharton Sinkler; censors, Drs. Richard A. Cleeman, S. Weir Mitchell, Louis Starr and Arthur V. Meigs; secretary, Dr. Thomas R. Neilson; treasurer, Dr. Richard H. Harte; honorary librarian, Dr. Frederick P. Henry; councilors, Drs. David L. Edsall and Charles W. Burr; committee on publication, Drs. Gwilym G. Davis, Thompson S. Westcott and William Zentmayer; library committee, Drs. Francis X. Dercum, William J. Taylor, S. Weir Mitchell, Francis R. Packard and George W. Norris; committee on Mutter museum, Drs. George McClellan, Henry Morris and Joseph P. Tunis; hall committee, Drs. John K. Mitchell, Thomas H. Fenton, B. Alexander Randall, E. Hollinsworth Siter and Aloysius O. J. Kelly; and committee on directory of nurses, Drs. James C. Wilson, Wharton Sinkler and Thomas G. Ashton.——During the transaction of private business, Dr. S. Weir Mitchell made the following presentations: On behalf of Mrs. Henry C. Chapman, a portrait by Sully of the late Dr. Nathaniel Chapman; on behalf of Hampton L. Carson, Esq., silhouettes of Dr. John Redman, Dr. Samuel Powel Griffitts and Dr. Abraham Chovet; and on behalf of Dr. Henry D. Jump, a gold watch formerly belonging to the late Dr. D. Hayes Agnew.——The Section on Otology and Laryngology of the College of Physicians of Philadelphia, at its last meeting, reelected Dr. Arthur W. Watson, chairman, and Dr. Ralph Butler, clerk.

VIRGINIA

Postgraduate School.—Drs. J. Shelton Horsley, William A. Shepherd, and Emmett H. Terrell have arranged to establish a postgraduate surgical school in Richmond, the courses in which will include clinical and experimental surgery and surgical pathology. The course will begin about the middle of February,and each class will be limited to four students.

Personal.—Captain Lawrence T. Price, Richmond, battalion surgeon of the First Battalion, First Infantry, N. G. Va., has been elected major.——Dr. Leroy L. Sawyer, Great Bridge, has been reelected physician to the Norfolk County almshouse. and Dr. Robert L. Corbell, Port Norfolk, health officer. Dr. Herbert R. Drewry, Norfolk, has been appointed assistant health officer.——Dr. William J. Chewning, F[illegible] is reported to be ill at his home.——Dr. Thom[illegible] risonburg, was stricken with cerebral hemorrhage recently.

State Board Notes.—Enough antitoxin for 400 cases of diphtheria was dispensed through the state health department to the physicians of the state during November.——Arrangements have recently been perfected which will render available the diagnosis and treatment of rabies at a nominal expense to the people of the state. The director of the Pasteur Institute of Virginia will examine for rabies dogs' heads sent by physicians of the state free of charge. The hygienic laboratory of the U. S. P. H. and M.-H. Service, Washington, will also make examinations gratis.

College of Medicine Destroyed by Fire.—On the morning of January 6, while the city was covered with ice, the building of the University College of Medicine, Richmond, was completely destroyed by fire, the origin of which is unknown, with a loss estimated at $130,000. Fortunately the fire did not reach the office of the institution and its records were preserved. The Virginia Hospital immediately adjoining, was saved, the only damage being that occasioned by smoke and water on the east wing, known as the Hunter McGuire Annex, nearest the burning building. Pending this renovation the clinical amphitheater and its accessories are put out of commission for a period of about a week only. The part of the building occupied by private patients was in no way damaged, and the work of the hospital with its private operating rooms has not been interrupted. Lectures were regularly resumed in 24 hour[illegible] halls generously tendered by other collegiate [illegible] the kindness of the Medical College of Virginia its laboratories are being used, and thus only an interruption of two or three days has been occasioned in this part of the course.

WISCONSIN

Tuberculosis Dispensary Opened.—The third dispensary for tuberculosis was opened by the Milwaukee Society for the Care of the Sick, December 15. It is located in the College of Physicians and Surgeons, and is to be opened Wednesday evenings and Monday mornings.

To Guard Health of Students.—In addition to Dr. Joseph Evans, Philadelphia, who has been made supervisor of medical attendants of all students at the University of Wisconsin, Madison, two other physicians are engaged in this duty, Dr. James C. Elsom, medical examiner of the men's gymnasium, and Dr. J. Helen Dobson, who holds a similar position in the woman's gymnasium.

Graduate Study.—At the meeting of Marathon County Medical Society, in Warsaw, December 27. the postgraduate plan of study suggested by the American Medical Association was adopted.——The Outagamie County Medical Society, at its meeting in Kaukana, January 4, decided to prepare at once for the holding of meetings for postgraduate study along standard lines.——Janesville Postgraduate Medical Society was organized January [illegible] in Janesville.

Societies Elect Officers.—The Milwaukee County Medical Society, at its annual meeting, December 10, elected the following officers: President, Dr. Louis F. Jermain; vice-president, Dr. William A. Batchelor; secretary, Dr. Daniel Hopkinson; treasurer, Dr. Joseph Kahn (reelected), and censor, Dr. Alfred W. Gray.——At a meeting of physicians of Neenah and Menasha, held December 28, in Neenah, the Twin City Medical Club was organized with Dr. James R. Barnett, Neenah, as president.

Personal.—Dr. John B. Trowbridge, Hayward, was operated on in Rochester, Minn., December 15, for tumor of abdomen.——Dr. Charles H. Sutherland, Janesville, has been appointed a member of the State Board of Health, vice Dr. Quincy O. Sutherland, deceased.——Dr. Chester M. Echols has succeeded Dr. Thomas Fitzgibbon as profes[illegible] Medical Department of Marquette [illegible] has been made emeritus professor.[illegible] served as one of the twelve members of the International Commission for the Control of Bovine Tuberculosis, which held its first meeting, December 13, in Buffalo.

GENERAL NEWS AND COMMENT

Diploma Stolen.—The State Board of Health of Illinois has sent out a notification that about Dec. 20, 1909, a thief stole the diploma of Dr. Daniel Lichty, Rockford, Ill. It is assumed that the thief intended to use or to sell the diploma and that Dr. Lichty's name will be erased. The diploma was issued by the Chicago Medical College, March 14, 1871.

New Dress for Lancet-Clinic.—The *Lancet-Clinic*, Cincinnati, begins the new year in an enlarged form and entirely new style and dress. It now conforms in size to the other weekly medical journals. Its new form is attractive. The arrangement of the matter is also changed, and the editorials, weekly news and comments are in front of the contributed articles and miscellaneous matter. The first number of the year is an especially interesting one. The new and enlarged form should please its readers and help to extend its already wide field of usefulness. The *Lancet-Clinic* is to be congratulated on its prosperity, and it has the best wishes of THE JOURNAL for continued success.

Meeting of the Far-Eastern Association of Tropical Medicine.—The first biennial meeting of this association is to be held in Manila, March 5-14, 1910. The association was established with the idea of bringing together workers in tropical medicine in that part of the world, and is important in that it brings English-speaking scientific workers together for mutual social and scientific improvement. The sessions in Manila will be held in the new building of the Philippine Medical School near the Bureau of Science and the new Government Hospital. The sessions in Baguio will be held in one of the government buildings. The government has appropriated a liberal sum for entertainment of guests during the meeting. Visits have been arranged to points of interest in the neighborhood. The museums of the Bureau of Science and of the Philippine Medical School will be thrown open and demonstrations of the specimens will be given. There will be a commercial exhibit of remedial agents, appliances and medical equipment appropriate for use in the tropics.

A Labordinized Pharmacopeia.—Congressman H. M. Coudrey of Missouri has introduced a bill whose alleged purpose is to have the United States Government edit and publish the Pharmacopeia. We have not succeeded in getting a copy of the bill so that it is not possible to discuss it in detail. This is not necessary, however. Readers of THE JOURNAL may remember that the Hon. H. M. Coudrey has previously been referred to in his capacity as president of the Labordine Pharmacal Company of St. Louis. Labordine, it will be further remembered, was, previous to the Food and Drugs Act, a "purely vegetable cardiac stimulant" which should be given preference over other antipyretics so as to "avoid acetanilid poisoning." Examination in the Association's laboratory showed Labordine to contain nearly 40 per cent. acetanilid—a result which the makers of the nostrum had to acknowledge after the Food and Drugs Act made it expensive to lie on the label. Those interested will find our writeup of the matter in THE JOURNAL of March 30, 1907. What the particular "joker" is in the bill thus introduced by a man whose various activities as an insurance agent, politician and "patent medicine" promoter so peculiarly fit him to pass on such an intricate subject as the revision of the Pharmacopeia, we cannot say. That there is a "joker"—or many of them—we do not doubt, any more than we think that revision of the Pharmacopeia by the "patent medicine" interests or their tools would further the best interests of the public, of the medical profession, or of scientific pharmacy.

FOREIGN

Spanish Congress for Laryngology.—The third national congress for laryngology will be held next April at Seville and will be the occasion for an ovation to the leading Spanish laryngologist, Prof. Don Ramon de la Sota y Lastra on the fiftieth anniversary of his professional career.

Antialcohol Work in Sweden.—In 1908 it was decreed that one-tenth of the government revenue from the liquor trade should be devoted to antialcohol agitation. The sum amounted in 1909 to nearly $50,000, part of which was appropriated for lectures for teachers on the evils of alcohol, and part was given to the Swedish Total Abstinence Medical Society for its special work in this line.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Dec. 24, 1909.

Munificent Gift for Medical Research

The late Mr. Alfred Beit, a South African millionaire, left $250,000 to the University of London to found an "Institute of the Medical Sciences." As the formation of this institute has for various reasons become impossible, his brother, Mr. Otto Beit, has decided to increase the sum to $1,075,000, so as to yield an annual income of $37,500 for "The Beit Memorial Fellowships for Medical Research." A sum of $1,250 a year for three years is to be granted to "any man or woman of European descent, graduate of any approved university within the British Empire, who is elected to a fellowship." The first election of fellows will take place on or before March 1, 1910. Not more than ten will be elected. The object is to promote the advancement by means of research, of medicine and the allied sciences in their relation to medicine. The fund will be administered by a board of trustees who in turn will be assisted by an advisory board of some of the most eminent physicians and physiologists in this country—Professors Clifford Allbutt, Osler, Rose Bradford, Martin and Starling. In the election of fellows the board will take into account not only the personal record of the candidates but also the importance of the research work proposed by them. Those who are elected fellows are expected to devote the whole of their time at an authorized laboratory. The list of authorized institutions where the research may be carried on covers a wide range. Provision is made for every branch of medicine, general and special, and for all the preliminary and auxiliary sciences. Thus chemistry, physics and general biology may be studied, taken up in the laboratories of the University and King's College, as well as anatomy, physiology, pharmacology and hygiene. Among the advanced and specialized studies for which provision is made are the following: Cancer, at the laboratories of the Imperial Cancer Research and Middlesex Hospitals; tuberculosis, at the laboratories of the royal commission and King Edward Sanatorium; tropical medicine, at the London and Liverpool schools; preventive medicine, at the Lister Institute and the Royal Institute of Public Health; mental disease, at the London county council laboratories at Claybury; naval medicine, at Haslar; military medicine, at the Army College, Millbank. Fellows must furnish a detailed statement of their work at the end of each year and their tenure may be cut short if their work does not justify their retention; on the other hand in suitable cases the tenure may be extended to 4 years.

Research scholarships are of course well-known in this country but this scheme for the promotion of medical research is unique in its magnitude. In recent years large endowments have been devoted to the erection and equipment of institutions and the maintenance of professorships. It seems that Mr. Beit and his advisers have determined to strike out a new line of endowment and provide for the devotion of picked students to medical research. The scheme is excellent in its object and the rules, on the whole, are good. But there is room for some criticism. The true researcher is born rather than made and a man capable of original work may for some reason not have a university degree, while the man who has attained the highest university honors is often wanting in originality. Again, it seems strange in this enlightened age, in this empire which includes so many Asiatic and other races, and in this metropolis to which men of every color come for purposes of study to exclude those who are not of European descent. Science has no frontiers and should not tolerate such a narrow-minded restriction.

Government Ceasing to Maintain Hospitals in Australia

Until the present year the whole of the hospitals in Australia have been supported by the government. The annual expenditure amounts to $500,000. It is now proposed that the management of hospitals shall be vested in local committees and that the government will only partly support them by annual subsidies. Thus to the Perth Hospital, which costs $90,000 to maintain, they will grant $65,000. The public will have to find the balance or the hospital will be reduced so as to work within the limits of the grant.

Curious Case of Chloroform Poisoning

In cases of death from drinking chloroform it has been contended that this substance is such a pungent liquid that it is extremely improbable that any one would drink it accidentally. A case is reported from Sheffield in which a child, aged 5 years, lost its life in this way. The wife of a collier procured for the relief of toothache a bottle of chloroform which she left on a mantelpiece. Early in the morning two children managed to obtain the bottle. The elder, a boy aged 8, drank some of the contents and also gave some to the younger, a girl aged 5 years, who cried for it. The girl became drowsy some hours later and a doctor was called too late.

A Physician's Bravery

The medal of the Royal Humane Society has been conferred on Dr. Leonard W. Oliver of Hampshire for an act of bravery. A man descended into a large cesspit which was being cleared out and was at once overcome by the gases at the bottom. Another man descended to help him and was similarly overcome and fell. An alarm was raised and the physician was called. He burned straw in order to get rid of the gases and then prepared to descend, when a policeman intervened and said the medical man would be of more use at the top. The policeman was roped and went down to the bottom but found the weight of the disabled men greater than he could lift. Dr. Oliver then went to his assistance and together they succeeded in bringing the men to the surface. The physician was able to resuscitate one but the other died. Medals of the Royal Humane Society (a distinction instituted for the recognition of acts of bravery in the saving of life) have been conferred on both Dr. Oliver and the policeman.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Dec. 24, 1909.

Death of Edouard Brissaud

French medical science has just experienced an irreparable loss. Dr. Edouard Brissaud, professor of medical pathology at the Paris medical school, has just died, aged 57, after a surgical operation for tumor of the head. Brissaud was born at Besançon in 1852, and studied at Paris, where his principal teachers were Féréol, Fournier and Charcot. He was laboratory assistant to Charcot in the laboratory of pathologic anatomy in 1878; he became physician of the hospitals in 1884 and *agrégé* in 1886. In 1899 Brissaud was appointed professor of the history of medicine to fill the place of Laboulbène, who had recently died. The next year he became professor of medical pathology. On May 18, 1909, he was elected a member of the Academy of Medicine.

Brissaud owed his celebrity chiefly to his works on the diseases of the nervous system. Under the direct influence of Charcot he had formed a taste for neurology, into which he introduced a whole series of new and original conceptions, especially in regard to Parkinson's disease, tabes, the interpretation of disturbances of sensibility in syringomyelia, etc. His studies on cerebral localizations, on hemiplegic contractures, on ophthalmoplegia, etc., were highly appreciated. While manifesting this decided predilection for neuropathology, however, Brissaud succeeded in avoiding narrow specialization, and none of the great problems of medical pathology were strangers to him. Thus, from 1879, he was engaged in demonstrating, in collaboration with Josias, the tuberculous nature of scrofulous gummas. Later he published a series of researches on local tuberculosis of the joints, etc. He described dysthyroidian infantilism, which is to-day designated under the name of infantilism of Brissaud. The clinical studies of Brissaud are founded, moreover, on a profound knowledge of pathologic anatomy, to which his works on cystic disease of the nipple, on the transformation of hepatic adenoma into cancer, etc., bear witness. In 1893 Brissaud with his colleague, Dr. Pierre Marie, founded the *Revue Neurologique*. He was also one of the directors of the second edition of the "Treatise on Medicine," the first edition of which was prepared under the direction of Charcot and Bouchard. More recently, with Professors Pinard and Reclus, he assumed the direction of the *Pratique médico-chirurgicale*, a kind of compendium giving in alphabetic order a succinct account of the most important questions in modern practice.

Dedication of the Monument to Péan

A few days ago the monument to the memory of Dr. Péan was dedicated. It stands not far from the hospital which the illustrious surgeon built at his own expense, and which bears his name. It is a statue in bronze representing Péan standing in frock coat, his broad shoulders and energetic features being well rendered. On the stone pedestal is the figure of a patient raising herself on her bed and holding up toward the surgeon a bunch of flowers. M. Fallières, president of the republic, presided at the ceremony of dedication. Several speeches were made. Professor Pozzi, in the name of the Academy of Medicine, described the important work accomplished by Péan. Having arrived while still young, at the summit of his profession, during more than thirty years Péan held one of the highest places in French surgery; and in foreign countries, his name like that of Charcot, enjoyed an unrivaled celebrity. He was the introducer of several operative methods of great importance, and the inventor of a great number of ingenious processes. It may be said that, directly or indirectly, he had a formative influence on all the contemporary masters of abdominal surgery. Péan was the first one to practice (in 1864) in Paris, the operation of oophorectomy, in which the great Nélaton himself had always failed. Péan's second title to the gratitude of surgeons is the substitution of forceps for ligatures to stop hemorrhage. Péan attached great importance to this part of his work, and accordingly M. Gauguié, the sculptor, has represented the master holding a hemostatic forceps in his hand. According to Professor Pozzi, Péan was neither a savant in the actual sense of the word, nor a learned man, nor yet an orator, but he was in the highest degree a clinician, an operator, a healer.

Testimonial of Respect to Professor Teissier

A few days ago at the Hôtel-Dieu of Lyons, in the presence of a great number of professors who came to Lyons on the occasion of this ceremony, a medal was given to Dr. Joseph Teissier, professor for twenty-five years at the Lyons medical school, by his pupils in France. Among those present were Professors Maragliano of Genoa, Grasset and Rodet of Montpellier, Bard of Geneva, Drs. Hallopeau and Pierre Teissier of Paris, and Frenkel of Toulouse.

Death of Dr. L. Malassez

Dr. L. Malassez, assistant director of the School of Higher Studies, president of the Society of Biology, and a member of the Academy of Medicine, died December 22, aged 67. Malassez had published a great number of works on normal and pathologic histology. His researches on the blood were particularly well-known. He invented many pieces of laboratory apparatus, especially a hemocytometer with a graduated chamber and a hemochromometer, which is considered the most precise, and at the same time the most simple apparatus for determining directly the quantity of hemoglobin contained in the blood.

Reorganization of the Morgue

The general council of the department of the Seine has just decided that the morgue should be torn down and rebuilt to form, not merely a mortuary depository, but a medicolegal institution, the creation of which has been demanded for a long time by the scientific professions. The expense will be $200,000 (1,000,000 francs) and the general government will be asked to bear half the expense.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Dec. 22, 1909.

Personals

Professor Hertel of Jena has been appointed successor to Professor Schirmer as director of the eye clinic at Strasburg.

Professor Hoche, director of the psychiatric clinic, has been chosen rector of the University of Freiburg for the year 1910-11.

Sickness Insurance in 1908

The number of sickness societies formed on the basis of the social legislation in the German empire according to the official statistics just published was increased only by 8. The entire membership increased about 200,000, so that at the end of the year it amounted to 12,500,000. The local societies include the greatest number of these. The number of cases of illness amounted to over 5.000,000. For every member there were 0.42 cases of sickness as opposed to 0.41 for 1907 and 0.38 for 1906. The number of days of illness amounted to 104,000,000, opposed to 97,000,000 in 1907. For every member there were 8.43 days of sickness, which is a considerable increase over the former year. The regular receipts amounted to $80,000,000 (333,000,000 marks) as opposed to $75,000,000 for 1907. The regular expenses have increased more markedly than the income, $6,240,000 (26,000,000 marks), from about $72,000,000 to $78,000,000. Of this amount about $71,280,000 were expended for sickness. Medical treatment required $16,448,000 as compared with $15,192,000 for the previous year. The expense of management rose from $4,028,000 to $4,344,000 and amounted to 34.28 cents (1.47 marks) per member as compared with 32.16 cents for the previous year.

German Medical Statistics

In the last number of the *Deutsche medizinische Wochenschrift*, the well-known medical statistician Prinzing of Ulm gives an interesting review of the statistics of physicians in Germany in 1909 based on the "Imperial Medical Calendar" for 1910, published by Professor Schwalbe. The number of physicians in Germany for this year amounts to 31,969, an increase of only 329 over the previous year. As the population of Germany in 1909 was 63,886,000 we have 5 physicians for 10,000 inhabitants, showing a continuous decrease since 1906 when the number was 5.06. Comparing this with other European countries, we find that for 10,000 inhabitants, England has 7.1 physicians; France, 4.9; Italy, 6.3; Austria, 4.1; Denmark, 5.2; Norway, 4.5; Sweden, 2.4; Russia, 1.8. The rise in the number of physicians in the last five years is slight because of the increase in the length of medical study which took effect a few years ago and especially on account of the addition of the so-called practical year. A marked increase in the number of physicans is to be expected soon as the number of medical students in the last few years has continually increased. This amounted to 6,080 for the winter semester of 1905, 7,219 for 1906, 7,773 for 1907, 8,879 for 1908, and 9,239 for the summer semester of 1909. In the different divisions of Germany the distribution of physicians is very different. In Eastern Prussia with greater Berlin the total number amounted to 9,347, a proportion of 4.93 per 10,000 inhabitants, in West Prussia it is 9,947. or 4.8 per 10,000, in Southern Germany 6,672, or 5.26 per 10,000 inhabitants. Naturally the greatest concentration of physicians is found in the large cities. Wiesbaden instead of Berlin has first place with 22.9 per 10,000 inhabitants, then follow Munich with 16.2, Strasburg with 14.6, Kiel 12.6; then comes greater Berlin with 12.4 and Frankfurt a.M. with 12.3. In the lowest place among the large cities stands Duisburg with 3 per 10,000. Of the large cities, Munich has experienced the greatest increase during the last year, as the number of physicians there has risen from 15.8 to 16.2 per 10,000 inhabitants. The still greater increase from 9.7 to 16.2 in Cologne is explained by the great influx of physicians who were attracted thither by the strike against the Krankenkassen. There are 381 places in Germany without a physician. In the majority a physician would not have a sufficient support.

The number of women physicians increases very slowly in Germany, being from 55 in the previous year to 69 in 1908. They settle almost altogether in the large cities. The tendency to specialism has apparently passed its high point. In the last year there were in the large cities 4,441 specialists and 8,491 general practitioners. For each 100 physicians there were 34.3 specialists as compared with 34.6 for the previous year. Frankfurt a.M. has the largest number of specialists as compared with other physicians, viz., 42.6 per 100; then follows Stuttgart, 42.4; greater Berlin, 31.7; and Kiel with the smallest number, 18.4. The representation of the individual specialties in the large cities has not materially altered as compared with the previous year; only a few show a slight increase.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Dec. 27, 1909.

Physical Culture of Our School Children

The results of investigations in schools, conducted by a number of school physicians, have revealed such unsatisfactory sanitary conditions among the children that a special advisory committee on the subject has been appointed by the ministry of the interior to consist of presidents of school boards, teachers of gymnastics and athletics, physicians and other experts. The program of the transactions of this committee will comprise the following subjects: How shall school children be taught to pay special attention to physical culture? How shall school gymnastics be supplemented by home gymnastics? What kind of physical culture is fit for children of elementary classes (age 6-14 years), and what is fit for the higher schools (14-18 years)? Gymnastic training as a preliminary measure for military education. Advisability of teaching rifle-firing. Organization of "boy scouts" after the English fashion. A special part of the transactions will deal with the care of the children with mental or physical defects. Thus, blind children as well as deaf-mutes will have to be educated in special institutes, and one of the questions bearing on this point is whether this education in homes shall be compulsory or shall it be left to the discretion of the parents. Likewise, the education and care of feeble-minded children is to be made a matter of the state, not a private one. The meetings of the committee will take place in January, 1910.

Personal News

Docent Dr. Alexander of Vienna has been appointed professor of otology by the emperor. Alexander's career is a singularly brilliant one. He is only 36 years of age, and already as a student he achieved much fame by his anatomic researches on the pathology of the ear. His ear-clinic in the Vienna policlinic, of which he is the head since two years, is much frequented by numerous doctors from America.

The vacant post of director of the second gynecologic clinic of the university has been offered to Professor Hofmeister in Ratte, and he has consented to succeed the much-lamented von Rosthorn, whose tragic death caused much confusion. The eye-clinic, which is still vacant after Schnabel's death, will in spite of all obstacles be taken over by Hess, about whom I have written previously (Nov. 20, 1909, liii, 753).

Consumption of Alcohol Among the Various Races in Austria

A statistical study of the amount of alcohol consumed by the various nations who form this empire has been published recently. It appears that the lower the standard of general culture, the more alcohol is consumed. There are altogether eight different nationalities here, Germans, Czechs, Italians, Hungarians, Roumanians, Ruthenians, Slovenians and Poles. Among the Germans and Italians mostly wine and beer is consumed, the Hungarians drink only wine, while the other nations drink mostly gin, whisky or brandy. One of the worst features is drinking by women and children, which is quite common among the Slavic races. Even babies are given some diluted spirit to "soothe" them. The religious and ethical institutions favor drinking in a high degree, and the state gets a large amount of its revenues from the alcohol tax, wherefore the official antialcohol campaign is really hypocritical. It has been shown that a peasant's family will spend 10 to 15 per cent. of their income on drinking. The average consumption of alcohol in German countries is constantly falling (being at present about 32 liters or 8 gallons per head per year, while in the poorer agricultural Slavic districts the amount is trebled easily. The antialcohol movement has practically no influence up till now among the uneducated classes, whilst the intelligent classes have responded little to its call. The attempts to raise the price of alcohol to a nearly prohibitive figure have resulted only in an increase of the revenue. The medical effects of the present conditions are seen in a very clear way during the recruiting, when the young men of various nationalities are called to military service. While 60 per cent. of the Germans, Italians and Hungarians are fit, only 35 per cent. of the poorer Slav youths can be admitted.

Pharmacology

CURARE

Report to the Council on Pharmacy and Chemistry

Physiologically, curare is an exceedingly active drug; its therapeutic value, however, in the opinion of the Council, is largely hypothetical. Added to this is the impossibility of obtaining pure material of definite action and the confusion that exists in regard to the names of the alkaloid obtained from different kinds of curare. For these reasons, the Council has voted that curare and curarin be not described in New and Nonofficial Remedies, but in view of the fact that these drugs are often referred to in medical literature it is thought advisable to publish the following general article.

W. A. PUCKNER, Secretary.

CURARE

Under the name curare several varieties of native extracts used as arrow poisons are known. These are commonly indicated by the kind of container in which they come into commerce, and are called calabash curare, tube curare (coming in bamboo), and pot or jar curare (German Topf).

The calabash curare is obtained principally from *Strychnos toxifera*, and contains the alkaloid curarin: the tube curare, or tubocurare, is from an undetermined source, it yields the alkaloids, tubocurarin and curin; the third variety of curare coming in jars is obtainable chiefly from *Strychnos Castelnæi* and *Cocculus toxiferus* and contains the alkaloids protocurarin and protocurin. Curare is variously called urari, woorari and woorali.

The method of preparation is not known. The various curares are found in brown masses of an intensely bitter taste not wholly soluble in water but much more soluble in dilute acid.

Action and Uses.—Curare paralyzes the endings of motor nerves in striped muscles in the following order: (a) short muscles of the toes, ears and eyes; (b) limbs, head, and neck; (c) respiration; (d) the heart, which is not affected except with very large doses. The paralysis does not affect the sensory nerves. In warm-blooded animals death occurs from paralysis of the respiration, convulsive movements sometimes occur and glycosuria is occasionally produced. In man little or no effect is produced when it is administered by the mouth.

Small hypodermic doses increase the force and the frequency of the pulse, raise the temperature slightly and cause perspiration and an increase in quantity of the urine. From larger quantities of the poison violent febrile phenomena occur, commencing with the characteristic symptoms of a severe chill.

Paralysis of the lower extremities comes on and may last from a few minutes to an hour. The fever may continue for 5 or 6 days if the dose is larger. Curare has been used but with little success in the treatment of tetanus and other conditions in which convulsions are prominent, and for this purpose it may be injected subcutaneously.

Curare should be used only after the specimen has been tested and the dose should be calculated as follows: The fatal dose per kilogram of dog is determined and one-tenth of this amount is administered for each kilogram of weight of the patient. This dose may be cautiously increased until there is some interference with respiration if care be taken not to induce total paralysis of respiration and if preparation has been made to carry on efficient respiration if it should become necessary.

Dosage.—The exact dose cannot be stated, as will be understood from what has been said, but the crude extract is somewhat variable in activity, and it would seem to be much better to use only the pure alkaloid curarin for therapeutic purposes. Physostigmin is the physiologic antidote—but artificial respiration must be the main dependence.

CURARIN

Curarin ($C_{19}H_{24}N_2O$), is the alkaloid prepared from calabash curare.[1]

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[1] This is prepared from calabash curare as follows: The finely powdered curare is macerated for some days with successive portions of water and then with diluted sulphuric acid. The mixed filtrates are treated with platinum chlorid so long as any precipitation occurs, the voluminous clay-colored residue is filtered through hard filter paper with pressure and washed with alcohol. The residue is transferred to absolute alcohol, heated on a water bath and decomposed by a stream of hydrogen sulphid, adding alcoholic ammonia from time to time to neutralize the liberated hydrochloric acid. Decomposition is complete in half an hour usually if the temperature is maintained sufficiently high, but the reaction does not take place in the cold. The mixture is filtered and the residue washed with absolute alcohol. Ether is added to the dark, red-brown filtrate to precipitate the curarin. The voluminous, flesh-colored, flaky, precipitated alkaloid is quickly collected on a filter, washed with ether and transferred to a desiccator wherein it becomes a slightly colored powder.

This impure product containing sulphur and inorganic salts is purified by treating it with a mixture of chloroform and absolute alcohol and filtering. The residue is dissolved in absolute alcohol and again precipitated with ether and the residue treated as before. This must be repeated until 0.34 milligrammes of the product will kill one kilogramme of rabbit, but this degree of toxicity is often attained after the first drying. (Boehm. Arch. der. Pharm., ccxxxv, 660.)

Tubocurarin ($C_{19}H_{21}NO_4$) from tubo-curare, is given as a synonym for curarin by Merck, although the action of the two is not the same. Tubocurarin is prepared as follows: An aqueous or slightly acid solution of curare is made slightly alkaline by ammonia causing a precipitate to be formed. This is separated from the solution which is now free from curin, another principle of curare. The solution is evaporated to a thin syrupy consistence and mixed with 2 volumes of alcohol and the clear solution precipitated with alcoholic solution of mercuric chlorid. The yellow flocculent precipitate thus formed is suspended in alcohol and treated with hydrogen sulphid to liberate the base from the mercury. The filtrate from this operation is treated with 3 volumes of ether, thereby precipitating the hydrochlorid of tubocurarin. This product is washed and dissolved in 96 per cent. alcohol and precipitated by the addition of 5 volumes of ether. From the hydrochlorid the free base can be prepared.

Curarin is a deliquescent powder soluble in water and alcohol (Merck). Oxidized by potassium permanganate it yields amines and oxalic acid. In general it has the properties of a quarternary base. It has a bitter taste.

Action and Uses.—The pharmacologic action of curarin has been described under curare, but mention should be made of certain differences between the several alkaloids found in the different varieties of curare. Curarin first paralyzes the motor nerve endings without affecting the heart and blood pressure to an important degree.

Tubocurarin has a very much weaker action on the motor nerve endings than has curarin. It first stimulates the reflex excitability of the cord which it later depresses. It also has a much greater effect on the heart, increasing the rate. The increased reflex irritability may persist with small doses. Curin does not participate in the action of curarin on the motor nerve endings but acts directly on the heart, first increasing the systole then depressing it; the heart finally stops in diastole after fatal doses.

Protocurarin acts qualitatively like curarin, but it is more active. Curarin is used for the same purposes as curare, but it has the advantage of being more constant in its action.

Dosage.—Curarin is used therapeutically only for its action on the motor nerve-endings and the dose must be very carefully regulated by the effects. From one to twelve milligrammes are injected for a man. The dose should be cautiously pushed until the extremities are motionless. The means for carrying on artificial respiration must be at hand, and if the respiration is seriously impaired artificial respiration must be carried on. The drug is very rapidly excreted by the kidneys and natural respiration is soon restored if the dose has not been excessive. The heart must also be carefully watched.

Owing to the differences in physiologic action between the curarins of different origin it is unfortunate that a manufacturer should give tubocurarin as a synonym for curarin.

CONCLUSIONS

1. Curare is a powerful and dangerous respiratory and cardiac depressant and paralyzant of motor nerve endings in striped muscle.
2. The value of curare either in tetanus or in any other disease is questionable.
3. No dose can be stated. The antidote, physostigmin, must be at hand and one must be ready to perform artificial respiration after each administration.
4. Each of the several alkaloids from the three varieties of curare has a different strength and a somewhat different action.
5. These alkaloids are not at present sufficiently differentiated in commerce to enable a physician to know which one he is using.

THE CHAMLEE CANCER CURE

Express Companies as an Aid to Quackery

No more valuable work is being done than that performed by the post-office authorities in denying use of the United States mails to those scoundrels who prey on the credulous and ignorant sick. So numerous and powerful has this class of human parasites become, however, that they have attempted to bring pressure to bear at Washington in order to secure what practically amounts to immunity for their cruel and fraudulent practices. To the honor of those in authority be it said they have so far been unsuccessful.

The Journal has published during the last year reports of several cases in which the "cancer cure" quacks have been put out of business by the activity of the postal authorities. One individual who conducts a particularly cruel fake is S. R. Chamlee who apparently is legally entitled to attach the letters M.D. to his name. Nearly four years ago Mr. Adams in his Great American Fraud series in referring to this man wrote:

> "I can do no more than mention, by way of warning, a scoundrel who endeavors *to frighten* women into taking his treatment by advertising in the papers, 'In woman's breast any lump is cancer.' "

Chamlee sends out the usual "form" letters common to his ilk, each succeeding letter heaping on the "agony" and attempting to frighten the prospective victim into parting with her money and neglecting proper *treatment.* To quote:

> "Our treatment is the only one that positively *eradicates* cancer from the blood, destroys cancer germs, heals the cancer sore, if any, and cures perfectly and permanently."

Then as if to terrorize the patient the letter closes:

> "We keep a complete record of every case and know that sudden and unexpected death occurs in many advanced cases."

The amount asked for the "treatment" is $25 which is reduced to $10 if the first few letters fail to secure a victim.

Now comes the sequel. Evidently the over-worked fraud-investigation department of the post-office finally reached this particular humbug for persons on the mailing list of his concern have received the following printed slip:

> NOTICE
>
> We have leased Dr. Chamlee's place and business for one year and have employed Dr. S. R. Chamlee himself and his force of assistants. He makes all the medicine and treats all patients that come at *any price they can pay. Dr. Chamlee has no time to ever answer any letters.* Address all letters to
>
> The St. Louis Sanitarium Co.,
> P. O. Lock Box 843, St. Louis, Mo.

Accompanying this was the following letter which will be read with interest by those who have given any thought to the question of the moral and legal responsibility of common carriers. The italics are ours:

> *THE ST. LOUIS SANITARIUM CO.*
>
> St. Louis, Mo., Jan. 1st, 1910.
>
> The Government has just decided that Physicians cannot diagnose cancer through the mails, and have consequently stopped our mail, and have refused to pay any money orders coming through the mail.
>
> This, however, applies to our mail only and does not affect our treatment here in the office in the least. *We are still doing business but have to take a new name and address.*
>
> The only way to get our valuable medicine is to NOT send a Money Order as we cannot cash them. *Send the money through an Express Co.*, P. O. Lock Box 843, St. Louis, Mo., and address all communications simply The St. Louis Sanitarium Co., P. O. Lock Box 843, St. Louis, Mo.
>
> Upon receipt of your money *we will promptly ship your medicine to your nearest Express office.* Please mention your nearest Express office and Express Co., handling same. We are using the above named box and name until we can decide on a permanent name and address. If you are coming to St. Louis, we will give you instructions how to reach us.
>
> Yours very truly,
> The St. Louis Sanitarium Co.

Whatever may be said about the shortcomings of the United States post-office it is apparent that its moral obligations to the public as a common carrier are heeded to a greater extent than in the case of those privately owned monopolies which control the shipping of packages in the United States.

Bismuth Beta-Naphtholate—A Correction

In the laboratory contribution, "Bismuth beta-naphtholate," published in The Journal, Dec. 18, 1909, the composition of the bismuth beta-naphtholate tablets of the H. K. Mulford Company was incorrectly stated. In calculating, from the analytical results, the probable composition of the bismuth beta-naphtholate contained in the tablets proper allowance was not made for the diluent (excipient) used in their manufacture.

The report stated that the analytical results indicated that the bismuth beta-naphtholate used in the tablets had the following composition:

BISMUTH BETA-NAPHTHOLATE (H. K. Mulford Co.)	BISMUTH.	"TOTAL NAPHTHOL."	SOL. IN CHLOROFORM OR ETHER.
Specimen 1 (tablets)	56.47	6.89	4.89
Specimen 2 (tablets)	51.27	18.84	3.21

Actually the analysis indicated the bismuth beta-naphtholate to have the following composition:

BISMUTH BETA-NAPHTHOLATE (H. K. Mulford Co.)	BISMUTH.	"TOTAL NAPHTHOL."	SOL. IN CHLOROFORM OR ETHER.
Specimen I	67.74	8.22	5.82
Specimen II	59.85	21.98	3.74

Thus it is seen that the naphthol compound contained in the tablets was much richer in bismuth and in combined naphthol, and that it also contained more chloroform-soluble matter than was indicated by the published report.

W. A. Puckner.

Correspondence

Suggestions for the U. S. Pharmacopeia IX

To the Editor:—I have read with interest the suggestions made by Dr. Oliver T. Osborne in THE JOURNAL, January 1, page 50, and trust that his series of five articles will awaken an increased interest in the Pharmacopeia among physicians throughout the entire country.

The U. S. Pharmacopeial Convention adopts general principles to be followed in the revision of the Pharmacopeia, which are mandatory in nature. The convention also passes resolutions which refer subjects either with or without recommendations to the Committee on Revision of the Pharmacopeia. The general principles and the resolutions adopted by the convention of 1900 appear on pages xxx to xxxiii inclusive of the U. S. Pharmacopeia VIII, and should be studied by all who are interested in formulating general principles and resolutions to be presented at the convention of 1910.

Medical societies and medical schools entitled to representation at the convention to be held at Washington, May 10, 1910, should take Dr. Osborne's suggestions as basis for discussion and formulate such additional recommendations as may be deemed best and then instruct their delegates to the convention.

The ten suggestions submitted by Dr. Osborne are timely, but unfortunately, will not meet with the hearty approval of all who are likely to be delegates in attendance at the convention. Recommendation No. 1 proposes to limit the official drugs to those which "are of positive therapeutic value." This is in striking contrast to the Coudrey measure, known as House of Representatives Bill 13,859, now in the hands of the Committee on Interstate and Foreign Commerce which provides that the government shall edit and publish the Pharmacopeia and that the Pharmacopeia shall contain "all drugs and chemicals whether generally used or not."

Such a law, if literally carried out, would produce a pharmacopeia larger in size than any single volume published in the world. The author of the bill (which by the way is not the Hon. H. M. Coudrey) may be a delegate to the 1910 convention and his views are no more extreme than those held by other persons who are likely to take part in the proceedings.

The Pharmacopeial Convention will meet in 1910, but the revised Pharmacopeia will not be published for two or three or more years and will be officially designated as the U. S. Pharmacopeia IX. This name is more appropriate than U. S. Pharmacopeia of 1910. The present Pharmacopeia is officially designated as the U. S. Pharmacopeia VIII. Its compilation was authorized by the convention of 1900, but it was not published until 1905.

The recommendation (No. 5) made by Dr. Osborne that official titles should be made as simple as possible and official abbreviations given when advisable, deserves hearty support. The 1900 convention adopted a similar general principle, but the Committee on Revision failed in its effort to observe the rule, as will be agreed by all who have attempted to write prescriptions calling for such official chemicals as benzosulphinidum, hexamethlyenamina, sulphonethylmethanum. I trust that the next revision committee will be more successful in observing this general principle.

The convention should recognize the teaspoon as holding 5 c.c., the dessert-spoon 10 c.c., and the table spoon 15 c.c. M. I. Wilbert (Proceedings of the Am. Ph. Assn., 1905, liii, 301) has shown that these are the average capacities and the American Medical Association has approved of these standards.

The amount of drug in the average dose of very potent preparations should be stated. As an example, the amount of opium in the average dose of tincture of opium, and the amount of strychnin in the average dose of tincture of nux vomica.

If physicians generally will contribute to THE JOURNAL suggestions for the U. S. Pharmacopeia IX, the collection of recommendations will enable medical societies and schools of medicine to carefully consider and decide on questions which otherwise will come before the convention of 1910 and find delegates unprepared to act intelligently or in cooperation.

HENRY M. WHELPLEY, M.D., St. Louis.

American Druggists Syndicate

To the Editor:—Permit me to congratulate and to thank you for your editorial and your article in the Department of Pharmacology, January 8, on the American Druggists Syndicate. It was high time that attention was called to the matter. I know of no other single agency that has such a demoralizing effect on the profession of pharmacy, that is so degrading the druggists of the country. We thought we were succeeding in diminishing the nostrum evil and we thought that the profession of pharmacy was beginning to become aware of its high mission and of the necessity of its being in cordial relations with the medical profession, but apparently this was a mistake. For an impudent promoter who has no idea of or sympathy with the ethics of either the professions of pharmacy or of medicine, comes along and thousands of druggists follow his lead and proclaim him a Moses.

It is certainly sad, nay, it is discouraging. Let us hope that both the editorial and the article on the A. D. S. in THE JOURNAL will be called to the attention of the druggists of the country by the various pharmaceutical journals, and that they, *i. e.*, the druggists, will perceive the folly and the danger of following leaders who have only their personal interests at heart.

WILLIAM J. ROBINSON, M.D., New York.

[COMMENT: Somewhat in line with Dr. Robinson's letter is one from another physician urging that the article and editorial referred to be sent to every retail druggist in the country. We believe, however, that the matter may be brought to the attention of the druggists concerned in a more direct, and therefore effective, way. The article and editorial on the American Druggists Syndicate have been reprinted and will be sent on receipt of a stamp to cover postage. There are doubtless many physicians who are interested in the progress of pharmacy and the propaganda against nostrums and who would like to register a protest to their local druggists against this hybrid "patent medicine" concern. To such this reprint will prove a convenience. That such protests will, when thus made, have a good effect cannot be doubted.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FORMALDEHYDE GAS POISONING

To the Editor:—Please cite cases and literature on formaldehyde gas poisoning, and inform me as to the effect on the human being of the continuous inhalation of a small amount of gas, as when a room which has been fumigated is used soon afterward as a sleeping-room. What would be the effect on temperature, pulse and respiration? How would it kill?

E. E. WUTTKE, Halstead, Kan.

ANSWER.—The gas is very irritating when inhaled and may lead to inflammation of the eyes and of the respiratory organs. It might produce death by causing edema of the larynx or by inducing capillary bronchitis. There seem to be no reports of death or of serious poisoning from the inhalation of small quantities such as would remain after a disinfected room had been well aired. The irritating nature of the gas usually prevents persons from remaining in it long enough to be seriously harmed. It is stated by Humpstone and Lintz (THE JOURNAL, Jan 30, 1909, p. 380) that only four cases of formaldehyde poisoning are to be found in the literature. Their case and one since reported by A. J. Bower (THE JOURNAL, April 3, 1909, p. 1106) make six in all. In all these the poison was swallowed in the form of a strong solution.

EFFECT OF DENATURED ALCOHOL APPLIED TO THE SKIN

To the Editor:—Please refer me to articles in THE JOURNAL concerning denatured alcohol and its effects when applied to the skin?

L. T. A. HOTTENDORF, M.D., Randolph, Utah.

ANSWER.—You will find references to denatured alcohol in THE JOURNAL, Dec. 25, 1909, p. 2173, and Jan. 1, 1910, p. 87. We can find no explicit statement as to the injurious results from applying methyl or wood alcohol to the skin, but as inhalation of the vapor of methyl alcohol has proved injurious and has even produced blindness, it would certainly be imprudent to use alcohol which has been denatured by mixing with methyl alcohol (wood alcohol).

The Public Service

Medical Department of the Army

Changes for the week ended Jan. 8, 1910:

Hughes, Leonard S., 1st lieut., M. R. C., granted 3 months' leave of absence, to take effect about Feb. 15, 1910.

O'Connor, R. P., capt., leave of absence extended 30 days.

Williams, Harry B., 1st lieut., M. R. C., recently appointed, is ordered to active duty in the service of the United States, and will proceed on Jan. 10, 1910, to Fort Sheridan, Ill., for duty.

Pierson, Robert H., capt., granted 10 days' leave of absence.

In compliance with G. O. 230, War Department, Nov. 12, 1907, the assignment of officers as Inspector for the Medical Department and Hospital Corps, National Guard, State of New York, is announced as follows:

> Colonel John Van R. Hoff, Medical Corps, to organizations stationed in New York City.
>
> Major Frank R. Koefer, Medical Corps, to organizations stationed in Albany and Troy.
>
> Major Elbert E. Persons, Medical Corps, to organizations stationed in Brooklyn.
>
> Captain Wm. R. Davis, Medical Corps, to organizations stationed in Buffalo, Rochester and Binghamton.

Hughes, Leonard S., 1st lieut., M. R. C., left Fort Worden en route to Fort Casey, Wash., for temporary duty.

Murtagh, John A., capt., leave of absence extended 7 days.

Glennan, James D., major, granted 30 days' leave of absence.

Rafferty, Ogden, lieut. col., January 1, retired from active service by reason of disability incident to the service.

Farr, Charles W., major, January 1, retired from active service by reason of disability incident to the service.

Shiflock, Paul, lieut. col., January 1, retired from active service by reason of disability incident to the service.

Gibson, Robert J., lieut. col., January 1, retired from active service by reason of disability incident to the service.

Bloombergh, H. D.; Nelson, Kent, capts.; Bartlett, Wm. K., 1st lieut., ordered to report in person to Major William E. Purviance, Medical Corps, president of examining board at Manila, for examination for promotion.

Patterson, Robert H., capt., granted leave of absence for 60 days, with permission to apply for an extension of 30 days.

Dolley, Gilman C., 1st lieut., M. R. C., ordered to active duty in the service of the United States,, and assigned to duty at Fort Leavenworth, Kan.

Davis, O. F., 1st lieut., M. R. C., granted 4 months' leave of absence, to take effect on his relief from duty in the Philippines Division, with permission to go beyond sea.

Thorne, James I., 1st lieut., M. R. C., ordered on arrival in the United States to proceed to his home, and on expiration of leave of absence will stand relieved from active duty in the Medical Reserve Corps.

Hall, James F., capt., granted leave of absence for 21 days on surgeon's certificate of disability, to take effect on expiration of his present leave of absence.

Wickline William A., capt, relieved from duty at Army General Hospital, San Francisco, and ordered to F[illegible] for duty in command of Company C, Hospital [illegible] terson, Robert H., capt., who on being thus [illegible] to Fort Banks, Mass., for duty.

Medical Corps of the Navy

Changes for the week ended Jan. 8, 1910:

Ames, H. E., medical director, commissioned medical director from Nov. 20, 1909.

Brister, J. M., surgeon, commissioned surgeon from Jan. 5, 1909.

Cole, H. W., P. A. surgeon, detached from the *Yankton*, and granted leave for 1 month.

Fauntleroy, A. M., P. A. surgeon, ordered to the *New York* and to additional duty in connection with the *Indiana*.

Phelps, J. R., asst.-surgeon, detached from the *New York* and ordered to the *Yankton*.

Public Health and Marine-Hospital Service.

Changes for the week ended Jan. 5, 1910:

Lumsden, L. L., P. A. surgeon, detailed to represent the Service at the annual meeting of municipal health officers of Ohio, to be held in Columbus, Ohio, Jan. 20-21, 1910.

Hobdy, W. C., P. A. surgeon, granted 4 months' leave of absence from Feb. 1, 1910.

Vogel, C. W., P. A. surgeon, granted 5 days' leave of absence from Dec. 25, 1909, under phragraph 191, Service Regulations.

Francis, Edward, P. A. surgeon, granted 2 days' leave of absence from Dec. 28, 1909, under paragraph 191, Service Regulations.

Roberts, Norman, P. A. surgeon, granted 3 days' leave of absence from Dec. 29, 1909, under paragraph 191, Service Regulations.

Bailey, C. W., acting asst.-surgeon, granted 2 days' leave of absence from Jan. 3, 1910.

Goldsborough, B. W., acting asst.-surgeon, granted 30 days' leave of absence from Jan. 5, 1910.

Tappan, J. W., acting asst.-surgeon, granted 2 days' leave of absence from Dec. 9, 1909, on account of sickness.

Book Notices

Collectanea Jacobi. Collected Essays, Addresses, Scientific Papers and Miscellaneous Writings of A. Jacobi, M.D., Professor of Infantile Pathology and Therapeutics, New York Medical College. In Eight Volumes. Edited by William J. Robinson, M.D., New York, 1909. Price, $15 per set. New York: The Critic and Guide Co., 1909.

Dr. Jacobi has not been classed as a "literary doctor," but rather as a busy practitioner who occasionally contributes to current medical literature. All who know him know him as a great worker, and as one who has done at least his share in the making of medical history in this country during the nearly sixty years he has been in the profession. But even those nearest to him will be astonished at one phase of his work—his "occasional contributions" to medical literature—here printed in this Collectanea Jacobi of eight volumes making a total of 3,928 pages. The author's preface is to a certain extent autobiographical, and it is hinted that there may be, some time, a real autobiography. It is certainly hoped that this may be so, for surely an autobiography of a man who has been among the leaders in medicine for so many years as has Dr. Jacobi would be interesting, inspiring, and, in a sense, a history of American medicine since 1853.

The contributions cover a wide variety of subjects, although naturally some phase of pediatrics is most prominent in the titles. In Volume I there are 17 articles, all relating to diseases of children, two being especially important at the present time, namely, "History of Cerebrospinal Meningitis in America" and "Cerebrospinal Meningitis, Symptomatology and Treatment." Volume II contains 25 papers, also on diseases of children. They cover diseases of the respiratory tract, the heart, diarrhea, dysentery, tabes mesenterica, acute rheumatism in infancy, etc.

The first paper in Volume III is "A History of American Pediatrics Before 1800," a most interesting summary occupying 40 pages. Besides this there are 16 other papers, including such subjects as hygiene, rachitis, infant feeding, diphtheria, clinical lectures on pediatrics, besides the report of rare cases. Volume IV is devoted to contributions on therapeutics and contains an article on phases in the development of therapy and 27 other papers, only 3 or 4 of which relate exclusively to diseases of children. Volume V is mainly devoted to pathologic subjects, nearly all referring especially to conditions in children. There are 23 articles in this volume and they cover such subjects as premature closure of the fontanels, craniotabes, aneurism, dermoid cysts, monstrosities, and many others.

In Volume VI are found some of the more philosophical studies and papers on sociologic and general medical subjects. There are 16 papers in this volume, and their character may be gathered from such titles as "Specialism and Specialists," "Monism in Medicine," "Brains and Capital Punishment," and "Non Nocere," delivered before the Eleventh International Medical Congress at Rome in 1894.

Volume VII contains 60, and the last volume 50 articles. These are made up of miscellaneous addresses and writings comprising inaugural orations, valedictory and memorial addresses, after-dinner addresses and toasts, and addresses delivered before a variety of societies and associations both here and abroad. At the end of Volume VIII is a general index to the volumes as well as a personal index referring to the individuals mentioned. Both of these indexes are very full and complete, and add materially to the value of the series of volumes.

The preceding outline indicates the general character of the articles here grouped together. Were there space to quote the titles the variety of subjects mentioned would indicate that Dr. Jacobi has been one of the leaders, not only in the making of pediatrics in America, but also of American medicine in the broad sense of the term. Certainly few men have had more influence on our profession than he, and that influence has always been for better things. With slight modification the words on Wren's tablet in Saint Paul's Cathedral are applicable here: "*Si monumentum requiris, circumspice.*" Certainly Dr. Jacobi needs no greater monument than these eight volumes. They are very tangible evidence of a busy and well-spent life.

OTITIC CEREBELLAR ABSCESS. By Heinrich Neumann, Privat-Docent, University of Vienna. Translated by Richard Lake, F.R.C.S Cloth. Pp. 156. Price, 4 shillings net. London: H. K. Lewis, 136 Gower Street, 1909.

Dr. Neumann, at the clinics of Vienna, has observed as many cases of cerebellar abscess probably, as any one, and puts his experience and observations at our disposal in a clear and concise manner. We are indebted to Dr. Lake for a smooth, fluent translation of the book into English. In the first 72 pages Neumann treats the clinical part of his subject under the following headings: statistics, etiology and pathologic anatomy, symptomatology, initial stage, manifest stage, terminal stage, diagnosis, differential diagnosis, prognosis, operation, after-treatment. The remainder of the book is given to "details of cases." Neumann gathered 140 cases from literature since 1900 and adds 28 cases which he personally observed in Professor Politzer's clinic. All the functional tests of the vestibular apparatus of the labyrinth are carefully considered. Still under the heading of diagnosis he says: "Many of the symptoms of cerebellar abscess are present in every intracranial complication. It shares a few symptoms with temporal lobe abscess and many of the symptoms are common to it and labyrinthine suppuration." Prognosis: "Out of 28 cases there are seven cures." This book is of special interest mainly to otologists, surgeons and neurologists. The absence of an index is to be regretted.

THE PRACTICAL MEDICINE SERIES. Under the General Editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Vol. VIII., Therapeutics, Preventive Medicine, and Climatology, Edited by George F. Butler, Ph.G., M.D., Henry B. Favill, A.B., M.D., and Norman Bridge, A.M., M.D. Cloth. Pp. 348. Price, $1.50; or $10 the series of 10 volumes. Chicago: The Year-Book Publishers, 1909.

This review of the year's literature on therapeutics, preventive medicine and climatology shows the increasing prominence given to measures aside from chemical or botanical drugs. While it is true that new drugs are constantly being produced and new applications and uses of old ones made, as shown in this volume, yet one is impressed with the large amount of study that seems to be given to hydrotherapy, internal and external, electricity, hyperemia, mechanotherapy, light, radium, vaccine and serumtherapy, and even psychotherapy. Preventive medicine occupies a constantly growing prominence in present-day medicine. The literature of the three subjects included in this volume of the "Practical Medicine Series" is well covered and can not fail to prove of value in keeping physicians abreast of therapeutic progress during the year.

VISITING NURSES IN THE UNITED STATES. Containing a Directory of the Organizations Employing Trained Visiting Nurses, with Chapters on the Principles, Organization and Methods of Administration of such Work. By Yssabella Waters, Henry Street (Nurses') Settlement. Cloth. Pp. 367. Price, $1.25. New York: Charities Publication Committee, 105 East Twenty-second Street.

As the author states in the preface, this book is issued for the purpose of showing what is being done in this country through the services of the trained nurse in what has been known for many years as "district nursing," and the extension of the work into medical inspection of schools, etc. Part 1 commences with a brief history of visiting nursing and then takes up the principle of the work and the methods of organization and administration. Part 2 is devoted to a directory of visiting nurses' associations and to statistical tables.

KLINIK DER [illegible] UND KONGENITALEN ERKRANKUNGEN [illegible] Dr. R. Birnbaum, Oberarzt der Kgl. [illegible] Göttingen. Paper. Pp. 274, with 49 [illegible] Berlin: Verlag von Julius Springer, 1909.

The author presents in one volume the whole subject of congenital anomalies. As a gynecologist he naturally lays special emphasis on their relation to childbirth. Thus he devotes 19 pages to hydrocephalus alone. This does not, however, made the book one-sided, nor does it affect its value as a scientific treatise on congenital anomalies. The illustrations are nearly all photographs of specimens from the Frauenklinik in Göttingen, and so are realistic and uniformly excellent. It is rather to be regretted that there are not more of them, as no subject lends itself better to such treatment. A final chapter deals with the legal status of monstrosities. The book should find a hearty welcome as a thoroughly scientific and compact exposition of a very scattered subject.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Coliseum Annex, Chicago, January 19-21. Sec., Dr. J. A. Egan, Springfield.
KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.
NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.
NEW YORK: Albany, February 1-4. Chief of Examinations Division, Dr. Charles F. Wheelock.
WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Arkansas November Report

Dr. F. T. Murphy, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, November 9-10, 1909. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 20, of whom 11 passed and 9 failed. Two reciprocal licenses were issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas (1894) 85.5;	(1909)	75.8
Maryland Medical College	(1902)	75.9
St. Louis University	(1907)	78.3
Barnes Medical College	(1909)	80.8
Memphis Hospital Medical College (1899) 80.4;	(1900)	84.5
Meharry Medical College	(1909)	77.7
University of Nashville	(1901)	84.5
University of Tennessee	(1909)	82.5
University of Virginia	(1909)	87.2

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Little Rock	(1909)	54.6, 58
University of Arkansas	(1909)	60.5
Medical College of New Orleans University*	(1898)	63.7
Barnes Medical College	(1908)	68.5
College of Physicians and Surgeons, Memphis	(1909)	72.1
Meharry Medical College (1907) 63.7;	(1908)	51.2
Memphis Hospital Medical College	(1909)	73.4

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
College of Physicians and Surgeons, Chicago	(1903)	Illinois
Jefferson Medical College	(1867)	Missouri

* Became Flint Medical College in 1901.

Florida November Report

Dr. J. D. Fernandez, secretary of the Regular Board of Medical Examiners of Florida, reports the written examination held at Jacksonville, Nov. 10-11, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 37, of whom 30 passed and 7 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama	(1909)	78
Yale Medical School	(1902)	92
George Washington University	(1905)	84
Atlanta School of Medicine	(1909)	84. 92
Atlanta College of Physicians and Surgeons	(1909)	80
Chicago College of Medicine and Surgery	(1909)	96, 97
College of Physicians and Surgeons, Chicago	(1902)	80
University of Louisville	(1909)	77
Kentucky School of Medicine	(1908)	86
Tulane University of Louisiana	(1909)	78, 86
University of Maryland (1899) 91;	(1909)	84
College of Phys. and Surg., Baltimore (1895) 87;	(1908)	80
University of Michigan, College of Medicine	(1909)	87
Bellevue Hospital Medical College	(1897)	90
Leonard School of Medicine (1908) 80;	(1909)	77
University of Pennsylvania	(1908)	87
Jefferson Medical College (1888) 78;	(1897)	77
Meharry Medical College	(1908)	75
Chattanooga Medical College	(1898)	85
University of Tennessee	(1885)	88
University of the South	(1909)	80
University of Virginia	(1906)	87
Queen's University, Kingston, Ontario	(1896)	90

FAILED

College	Year Grad.	Per Cent.
Atlanta School of Medicine	(1909)	59
Atlanta College of Physicians and Surgeons	(1907)	70
University of Louisville	(1893)	30
Medical College of South Carolina	(1909)	68
University of West Tennessee	(1909)	72
University of the South	(1909)	66
University of Vermont	(1893)	60

Marriages

William R. Bagley, M.D., Duluth, to Miss Marian Miller, of Chicago, January 1.

Edwin L. Wood, M.D., Dansville, N. Y., to Miss Edith Farnham, of Buffalo, December 30.

George Harvey Buck, M.D., to Miss Lela Kinsall, both of Greensburg, Kan., December 15.

David Heine Levy, M.D., to Miss Dorothea G. Leopold, both of New York City, December 28.

Rudolph A. Michelson, M.D., to Miss Annie Michelson, both of Baltimore, December 26.

Noah W. Clark, M.D., Rossville, Ind., to Miss Rosettie C. Cline, of Flora, Ind., December 25.

Walter R. George, M.D., to Mrs. Mary Irene Schandorf, both of Indianapolis, December 25.

Ernest Paul Murdock, Jr., M.D., Chicago, to Miss Edythe Wood, of Albany, N. Y., December 27.

Miles U. Lieser, M.D., Vancouver, B. C., to Blanche Darrow, M.D., of St. Louis, December 29.

Burton Bohannon, M.D., St. Louis, to Miss Elma Estelle Hallett, of Sac City, Iowa, December 22.

Elmer E. Eifert, M.D., to Miss Irene Black, both of Hillsboro, Ind., at Danville, Ill., December 26.

Henry B. O'Brien, M.D., Pascoe, Wash., to Miss Lillian Neuquist, of Stillwater, Minn., December 28.

Gustavus J. McIntosh, M.D., Devil's Lake, N. D., to Miss Mabel Colson, of Minneapolis, December 29.

Clarence S. Ordway, M.D., Toledo, Ohio, to Miss Marion Frances Sweet, of Green Bay, Wis., December 25.

Charles W. Burgess, M.D., Bethany, Mo., to Frances E. Rutledge, M.D., of St. Joseph, Mo., December 30.

Frederick William Tretbar, M.D., Hudson, Kan., to Miss Elsa Louise Wendt, of Fairfield, Iowa, December 29.

Charles Rex Kennedy, M.D., to Miss Annabel Daggett, both of Omaha, at Plattsmouth, Neb., December 25.

Horace Faulkner Hoskins, M.D., Weyers Cave, Va., to Miss Maria Temple Bird, at Baltimore, December 28.

William H. Curtiss, M.D., Frankfort, Ind., to Miss Mabel Hale, of Long Beach, Cal., at Sedalia, Mo., December 19.

Deaths

William Sterling Huselton, M.D. Georgetown University, Washington, D. C., 1865; a member of the American Medical Association; for three years assistant surgeon in the army during the Civil War; one of the organizers and a charter member of the staff of the Allegheny General Hospital, and later consulting surgeon to that institution; chief surgeon to the Pittsburg and Western Railroad, and division surgeon of the Baltimore and Ohio Railroad; for many years a member of the local pension board; for several years treasurer, and later president of the Allegheny County Medical Society; at various times an officer of the municipal government of Pittsburg; died at his home in that city, January 1, aged 69.

James Anthony Burroughs, M.D. Louisville Medical College, 1882; a member of the American Medical Association; president of the Medical Society of the State of North Carolina; formerly president of the Buncombe County (N. C.) Medical Society; and president and honorary member of the Tri-State Medical Society of Virginia and the Carolinas; a prominent member of the Mississippi Valley Medical Association and American Public Health Association; a member of the local board of health and of the State Board of Health; and one of the most noted specialists on tuberculosis of the United States; died at his home in Asheville, December 29, from nephritis, aged 52.

Herbert Charles Wilson, M.D. Trinity Medical College, Toronto, 1882; first speaker of the territorial legislature of Alberta; a practitioner of Edmonton since 1882; a member of the Northwest Council, and delegate to the Ottawa government from that body in 1885; formerly mayor of Edmonton, and in 1907, president of the Alberta Medical Association; died at his home, December 23, aged 50.

John Henry Marsh, M.D. Jefferson Medical College, 1889; a member of the American Medical Association; surgeon to St. Luke's Hospital; and founder of the Marsh-Highsmith Hospital, Fayetteville, N. C.; formerly president of the Cumberland County Medical Society; and for several years city superintendent of health; died in St. Luke's Hospital, January 2, from nephritis, aged 45.

Joseph Franklin Perry, M.D. Harvard Medical School, 1873; a member of the Massachusetts Medical Society; a veteran of the Civil War; editor and owner of the *Boston Journal of Health;* later medical director of an insurance company; founder of, and physician-in-chief to the Blue Hills Sanatorium, Ashmont, Mass.; died in the Boston City Hospital, December 31, aged 63.

George Edward Woodbury, M.D. Dartmouth Medical School, Hanover, N. H., 1860; a member of the Massachusetts Medical Society; surgeon of the Second District of Columbia volunteer infantry during the Civil War; a trustee of the Nevins Memorial Library; secretary of the Methuen Historical Society; died at his home in Methuen, December 26, from heart disease, aged 71.

George Francis Thomson, M.D. New York University, New York City, 1855; surgeon of the Thirty-eighth Massachusetts Volunteer Infantry, and later of the Twenty-sixth New York Volunteer Cavalry; a member of the Massachusetts Medical Society and assistant medical examiner of Hampshire county; died at his home in Belchertown, December 23, from heart disease, aged 77.

James Henry Stauffer, M.D. Baltimore Medical College, 1904; a member of the American Medical Association; formerly assistant physician in the obstetrical department of the Maryland General Hospital, and later in charge of the department of surgery in the dispensary of that institution; died in Johns Hopkins Hospital, Baltimore, January 3, from leukemia, aged 32.

Don Morrison Waggoner, M.D. Rush Medical College, 1881; Bellevue Hospital Medical College, 1882; president of the pension board of Lewistown, Ill.; one of the most prominent practitioners of Fulton county, who with his wife was making a tour of the world; died on board the steamer *Cleveland*, January 1, near Kobe, Japan, from cancer of the tongue, aged 48.

Henry Rust Parker, M.D. Dartmouth Medical School, Hanover. N. H., 1866; a member of the New Hampshire Medical Society; for two terms mayor of Dover; formerly president of the Dover Medical Society and Strafford District Medical Association; and president of the county pension board; died at his home in Dover, December 29, from pneumonia, aged 73.

Frank M. Warford, M.D. College of Physicians and Surgeons, Keokuk, 1856; assistant surgeon of the Third Iowa and Fourth Arkansas Volunteer Cavalry during the Civil War; also an attorney; for three terms president of the Hamilton County, Ind., Medical Association; died at his home in Cicero, December 17, from uremia, aged 78.

Horatio Walker, M.D. McGill University, Montreal, 1902; a member of the Medical Society of the State of California; formerly of Duluth, Minn.; a member of the faculty of the University of Southern California, Los Angeles; died in the Pasadena Hospital, December 30, two weeks after an operation for tuberculosis of the kidney.

John N. Parr, M.D. Medical College of Ohio, Cincinnati, 1866; a member of the Indiana State Medical Association; a veteran of the Civil War; for three years a clergyman of the Methodist Episcopal church; vice-president of the State Bank of Sheridan; died at his home in Lebanon, December 24, from disease of the liver, aged 72.

Luther I. McLin, M.D. Detroit Homeopathic Medical College, 1873; first mayor of St. Joseph, Mich., holding that office for four terms; for many years a member of the city council, board of public works, and board of education; died at the home of his son in Twin Falls, Idaho, December 14, from heart disease, aged 62.

Eugene Clarke Goodloe, M.D. Vanderbilt University, Nashville, 1897; of Demopolis, Ala.; a member of the Medical Association of the State of Alabama; and Tri-State Medical Society of Alabama, Georgia and Tennessee; local surgeon of the Southern Railway; died in an infirmary in Selma, Ala., December 25.

George Alvin Weida, M.D. New York University, New York City, 1888; of Frederick, Pa.; a member of the American Medical Association; twice a member of the Pennsylvania legislature; died suddenly in a snow drift from heart disease, while making a professional call, December 30, aged 43.

Wallace Erie Edgerton, M.D. State University of Iowa, Iowa City, 1880; a member of the American Medical Association; one of the pioneer practitioners of South Dakota; a member of the local pension examining board of Salem; died at his home, August 11, from cirrhosis of the liver, aged 56.

George Sintzel, M.D. Missouri Medical College, St. Louis, 1878; for thirteen years president of the village council of Niles Center, Ill.; and formerly a member of the staff of St. Francis Hospital, Evanston, and Cook County Hospital; died at his home January 2, from pneumonia, aged 53.

William Wallace Wickham, M.D. Washington University, St. Louis, 1856; a surgeon in the Federal service during the Civil War; for many years a practitioner of South Bend, Ind.; died at the home of his daughter in Crawfordsville, Ind., December 21, from senile debility, aged 89.

Frank Hosford Watson, M.D. Johns Hopkins Medical School, Baltimore, 1903; lecturer and instructor in clinical medicine in Tulane University, New Orleans, and visiting physician to Charity Hospital; died in a sanitarium in Stevens Point, Wis., December 15, aged 31.

William Luther Nolen, M.D. New York University, New York City, 1891; a member of the Medical Society of Virginia; formerly of Chattanooga, Tenn.; founder of the Nolan Hospital; died at his home in Salem, Va., January 1, from heart disease, aged 44.

Frank Colverd Bruce, M.D. University of Vermont, Burlington, 1885; a member of the Massachusetts Medical Society; for several years chairman of the Easthampton, Mass., board of education; died in Northampton, Mass., November 7, from paresis, aged 49.

John C. Ross, Indiana Eclectic Medical College, Indianapolis, 1880; (license, Ind., 1897, years of practice); an eclectic practitioner of Muncie, Ind.; was run over by a freight train and instantly killed, while making a professional call, December 17, aged 65.

Gaston Puchot, M.D. National Medical College, City of Mexico, 1901; (license, Texas, 1909); of Matamoras, Mex.; died in that place, December 1, from a gunshot wound of the heart, self-inflicted, it is believed with suicidal intent, aged 34.

James Forman Pineo, M.D. Bellevue Hospital Medical College, 1877; formerly of West Chester, N. S., and Bennington and Meriden, N. H.; died at his old home in Lower Wolfville, N. S., December 20, from lung disease, aged 65.

James Yates, M.D. Detroit Medical College, 1874; a member of the American Medical Association; health officer of Erin township, Macomb county, Mich.; died at his home in Roseville, December 27, from heart disease, aged 69.

Abram Mullinix, M.D. College of Physicians and Surgeons, Keokuk, 1874; vice-president of the bank of Willow Springs, Mo.; while making a professional call, died suddenly December 28, from cerebral hemorrhage, aged 72.

Henry K. Main, M.D. University of Nashville, 1872; of Dalton, Ga.; formerly of Atlanta; a Confederate veteran; died at the home of a friend in Atlanta, December 27, from cerebral hemorrhage, aged 65.

William N. Heath (license, Ind.); for more than forty years a practitioner of Indiana; at one time auditor of Madison county; died at the home of his daughter in Kokomo, December 30, from nephritis, aged 65.

William Chester Beaman, M.D. Queens University, Kingston, Ont., 1886; a member of the Ottawa (Ont.) City Council and board of health for four years; died suddenly at his home in Ottawa, December 31, from duodenal ulcer, aged 53.

Joseph James Moore, M.D. University of Michigan, Ann Arbor, 1876; a member of the Michigan State Medical Society; died at his home in Farmington, December 28, from cerebral hemorrhage, aged 75.

Charles P. Geudtner, M.D. Rush Medical College, 1896; a member of the Illinois State Medical Society; a specialist on diseases of the eye; died at his home in Chicago, January 5, from pneumonia, aged 44.

Patrick Freebern Gavin, M.D. Harvard Medical School, 1870; Kings and Queens College of Physicians and Surgeons, Dublin, Ireland, 1871; died at his home in South Boston, December 22, from pneumonia, aged 64.

P. Solomon Cote, M.D. Laval University, 1902; of Montreal; for six months a member of the editorial staff of *Le Canada*; a specialist on nervous diseases; died at his home, December 22, aged 52.

Joseph Gilbert Gray, M.D. Medical College of Ohio, Cincinnati, 1909; who was about to open an office in Springfield, Ill.; died at St. Johns Hospital in that city, December 31, from erysipelas, aged 23.

Walter Alfred Smith, M.D. Cooper Medical College, San Francisco, 1907; resident physician at St. Francis Hospital, San Francisco; died in that city, August 14, from lobar pneumonia, aged 29.

Edmund Strachan Pendleton, M.D. Jefferson Medical College, 1854; a member of the Medical Society of Virginia; and a Confederate veteran; died at his home in Iron Gate, Va., December 27.

Charles Quick, M.D. Grand Rapids (Mich.) Medical College, 1906; a member of the Michigan State Medical Society; died at his home in Grand Rapids, December 26, from nephritis, aged 50.

James Thomas Kerrigan, M.D. University of Vermont, Burlington, 1899; formerly of Waltham, Boston; died at his old home in Hudson, Mass., December 9, from abscess of the brain, aged 35.

Benjamin F. Mills, M.D. Willoughby (Ohio) University, 1846; a pioneer practitioner of Rock County, Wis.; died at his home in Baraboo, December 19, from senile debility, aged 88.

Jesse L. Stilwell, M.D. College of Physicians and Surgeons, Baltimore, 1905; of Freehold, N. J.; died at the home of his uncle, near that place, December 17, from diabetes, aged 37.

Richard A. Pinkley (license, Ill., years of practice, 1877); for forty years a practitioner of Illinois; died at his home in Bushnell, December 16, from cerebral hemorrhage, aged 76.

William Wilson Barber, M.D. Eclectic Medical Institute, Cincinnati, 1893; a member of the school board of Cumminsville, Cincinnati; died at his home December 20, aged 39.

Walter Crooks Bowers, M.D. Rush Medical College, 1882; a member of the American Medical Association; died at his home in Decatur, Ill., December 31, from pneumonia, aged 52.

Gustavus M. Cowger (license, years of practice, Iowa, 1886); a veteran of the Civil War; died at his home in Agency, Iowa, July 12, from angina pectoris, aged 72.

Charles Eugene Meader, M.D. Harvard Medical School, 1879; a member of the Massachusetts Medical Society; died at his home in Lynn, December 27, from anemia, aged 57.

John Allen Gunn, M.D. Medical College of Ohio, Cincinnati, 1868; a Confederate veteran; died at his home in Hopkinsville, Ky., December 19, from arteriosclerosis, aged 69.

Daniel I. Avery (license, Mo., 1883); for many years a practitioner of Lebanon, Mo.; died at the home of his brother in Whitehall, Ill., January 1, from tuberculosis.

Charles N. Lake, M.D. Harvard Medical School, Boston, 1895; a member of the American Medical Association; died at his home in Detroit, December 26, from pneumonia.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Industrial Insurance in Germany

Mr. Thomas H. Norton, United States Consul at Chemnitz, Germany, has submitted a report on compulsory insurance among the working classes in Germany which is especially interesting on account of his comments on the effect of this system on the medical profession. He states that while compulsory insurance against sickness and accident as well as insurance for old age has done much to raise the level of comfort for working men and their families, yet it has had a decided effect on the medical profession which is attracting considerable attention in Germany at present. The compulsory insurance system has enabled working men to face the uncertainties of employment and the liability to poverty in old age, has freed them from much of the anxiety and actual suffering which is a part of the lot of the laboring classes in other countries, but it has also deprived a large share of the population of the right to select their medical advisers at will. Physicians are engaged by the officials of the insurance organizations on fixed terms, which are usually far below the minimum rate fixed by law for medical services and which are specifically provided for by contract. "The old-time relations between physicians and patients," says Mr. Norton, "are rapidly giving way to a purely business connection in which the personal equation is of constantly diminishing importance."

There is keen competition among physicians to secure appointments as medical officers of the different insurance companies, while the very low fees paid may tend to encourage perfunctory and inadequate services. The necessity of the attending physician doing his best to win the confidence of the patient as well as of the family and friends of the patient, no longer exists, the physician securing his business by virtue of his appointment as a medical officer of the insurance company and not on account of his patient's confidence in him. On the other hand, there is said to be a tendency on the part of those holding insurance policies to abuse their privilege by sending for a physician for trivial ailments, or by calling him at any hour of the day or night. In the pursuance of his duties as a company physician, it is also necessary for the physician to perform, to a certain extent, the work of a detective, since he is required to detect and report any tendency toward malingering, necessarily an important problem in dealing with working men.

Finally, the enforcement of compulsory insurance has brought about a distinct lowering of the average compensation for professional services. While it is true that a large number of persons formerly treated as charity patients are now compelled to carry insurance, and a certain amount of remuneration is therefore paid by them to the attending physician, it is also asserted that a much larger number, especially of the better class of working men, whose modest fees formerly constituted an important part of the doctor's income, are now furnished with free treatment and that this more than compensates for the additional remuneration received from the first-mentioned class. The tendency on the part of the state is to increase the number of those affected by compulsory insurance, and it is now proposed to require insurance among clerks and employees receiving higher salaries than the maximum established by the present law ($476). Each advance will, of course, increase the number of families affected and will consequently diminish the number of families to which the physician in private practice can look for support.

While the evils pointed out in Mr. Norton's report are undeniable, they are not necessary or essential features of the compulsory insurance plan. That some form of protection for the working man and his family against sickness and old age is desirable and necessary under present economic and sociologic conditions is apparent. That the services of medical men are indispensable in operating such a plan is also evident. This, however, instead of being a disadvantage to the physician, is a distinct advantage, inasmuch as it opens up an entirely new field for his labors, namely, that of examining and rating men who take out insurance or who retire under its provisions. The fact that the medical profession in Germany has allowed itself to be exploited for the sake of the rest of society cannot be charged against the compulsory insurance plan. Had the physicians in Germany been sufficiently alert to see the danger and sufficiently well organized to resist it, the compulsory insurance laws would have proved a benefit to them instead of a disadvantage. The vital point in Mr. Norton's report, as far as it affects the medical profession, is his statement that physicians are engaged by officials of insurance organizations on fixed terms which are "far below the minimum rate usually paid for medical services." It is safe to say that the other employees of the insurance companies do not work for wages or salaries which are "far below the minimum rate" paid for such services and there is no reason why the physician should be made an exception, except that he has allowed himself to be. The fact rather seems to be that the doctor is not used to disposing of his services in bulk. Either as individuals or as a profession, we do not know what price to put on our services and we consequently allow ourselves to be undervalued, except when a personal relation is concerned.

Even if the facts had been recognized in time, however, this exploitation of the German medical profession could probably not have been prevented, since the physicians of Germany were not sufficiently well organized to act in concert and to resist the imposition of inadequate fees. Hence, as has generally been the case in any philanthropic or cooperative scheme, the physician has borne the greater part of the financial burden. Organization, careful investigation, concerted action, and a united position on the question would have made it necessary to pay adequate and reasonable fees for medical services instead of amounts which were entirely incommensurate with the value of the services rendered.

The lesson to us is obvious. If industrial insurance is needed and is feasible, it will doubtless be put in operation in this country. If we would avoid the evils which have fallen on the German physicians, let us see to it we have effective organization so that we may be able to avoid the evils which have befallen our professional brethren in Germany.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
Bowling Green, Kentucky

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—Fourth Weekly Meeting

Diseases of the Pancreas

Hemorrhage of the Pancreas: Pathology. Symptoms.
Acute Pancreatitis: Relation to fat-necrosis. Technic and significance of the Cammidge reaction.
Acute Hemorrhagic Pancreatitis: Etiology. Symptoms. Differentiate from perforative peritonitis and acute intestinal obstruction.
Acute Suppurative Pancreatitis: Etiology. Pathology.
Gangrenous Pancreatitis: Etiology. Diagnosis.
Chronic Pancreatitis: Pathology. Association with diabetes.
Pancreatic Cysts: Varieties, Pathology. Diagnosis.
Tumors of the Pancreas: Varieties, carcinoma, sarcoma, cysts, tubercle, syphiloma. Symptoms. Diagnosis.

Monthly Meeting

Differential Diagnosis and Treatment of Acute Pancreatitis.
Medicinal Treatment of Chronic Gastric Catarrh.
Etiology and Treatment of Chronic Diarrhea.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, January 25.

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Annual Meeting, held in New York City, Nov. 27, 1909

Significance of Ferments in Tumors, with a Digest of Literature

Dr. Richard Weil, New York City, presented a report on the antitryptic reaction of the blood, including some original observations. He described the methods hitherto used, pointing out as a serious defect the fact that they were competent to determine only inexactly either the point of total inhibition or of complete digestion. A much more accurate and flexible method was afforded by the viscosimeter, which he had recently adapted to the study of the reaction. The original assertion of Brieger that an increased antitryptic reaction was characteristic of cancer, and occurred in 90 per cent. of the cases, has been amply confirmed by subsequent observers. On the other hand, the same reaction characterizes many of the acute infections, also Graves' disease, chronic tuberculosis, and diabetes. Diagnostically, therefore, although an increased antitryptic index can no longer be considered as typical of cancer, its presence may become a datum of great clinical importance. In the absence of complicating factors, such as tuberculosis, it may determine the diagnosis of cancer in obscure cachectic diseases. In the presence of new growths of questionable character, as in the breast, its presence or absence may be taken as very strong presumptive evidence (from 85 to 95 per cent.) of malignancy or the reverse. Biologically, the reaction appears to be of wide significance, and has suggested many problems. It has been generally held that the inhibition of trypsin indicates the existence of a specific immune body. Dr. Weil cited a number of experiments in disproof of this view, notably the inhibition of papain by the serum. The source of the hypothetical trypsin which acts as a stimulus to the production of the so-called antitrypsin, which has been located by different authors in the pancreas, the leucocytes and the tissues, was discussed in detail.

DISCUSSION

Dr. S. B. Wolbach, Boston: Is it possible that changes in the viscosity of the blood, such as occur in disease could have influenced the viscosity of the test mixture (gelatin and blood-serum)?

Dr. W. T. Longcope, Philadelphia: Has it been possible to formulate any rule, from the observations with the viscosimeter, as to the characteristics of the antitryptic index in various diseases?

Dr. Richard Weil: The viscosity of the serum, in the dilution used (namely, 2 per cent.), played no part in the readings, as it coincided with that of salt solution. It has not yet been possible to formulate any general rules as to the characteristics of the antitryptic index in various diseases; but it seems probable that a larger series of observations with the viscosimeter will make this possible.

An Epidemic of Carcinoma of the Thyroid Gland Among Fish

Dr. Harvey R. Gaylord, Buffalo: This paper is a continuation of a preliminary report made before the society a year ago. It gives details of two epidemics in different parts of the country, and refers to two others. The epidemic referred to last year, which resulted in the loss of 3,500 brook trout, had, during the summer of 1909, begun to involve the brown trout and adult rainbows, so that heavy losses continued during this summer. Among the fish preserved from this epidemic was one with a tumor on the lower jaw, which on section was found to be either an implantation of the thyroid tumor or a metastasis, as the fish so affected had a primary tumor of the thyroid. From this observation it is plain that this tumor may, under given conditions, metastasize, or that it is implantable. In an epidemic in a second hatchery, an analysis of the course of the disease again showed that where fish occupied ponds which received water from ponds containing infected fish, these fish may become infected; and, furthermore, the rate at which the fish become involved increases progressively as the contents of ponds containing infected fish are added to the water which supply the fish. Another observation of importance is the discovery that lots of fish are immune. This is particularly shown in hybrid fish, in which one lot of hybrid salmon one year old were reduced from 1,043 in April to 44 sound fish remaining in August, whereas another lot of yearling hybrid salmon, although badly exposed by being placed in ponds into which the water from infected ponds ran, remained free from the disease throughout. Three lots of Scotch sea trout remained immune, although badly exposed. The only lot of brook trout two years old which were free from the disease was found on a careful analysis of their position throughout their entire life history in this hatchery, never to have been placed where the water from infected troughs or ponds flowed to them. They were placed in the uppermost pond and remained free from the disease throughout the epidemic. These observations on immunity in hybrid fish, in the light of those made by Tyzzer in inoculation of Japanese waltzing mouse tumor, in hybrids from immune and non-immune parents, serve to accentuate the similarity of this disease in fish to cancer in warm-blooded animals.

The disease is found to affect very small fish. A brook trout of the hatch of 1909, three inches in length, was shown with a tumor of considerable size from which it had died. This was the first affected fish from the hatch of 1909, and it had occupied from May until September one of five troughs which had the previous summer contained infected fish. From this it would appear that the contagion can be localized, even to given, small wooden troughs, and that these troughs can retain their infectivity from year to year. In all the epidemics thus far described, occasionally large fish, when exposed, acquire the disease. A land-locked salmon 8 years old, measuring 24 inches in length, developed large tumors, and in two other hatcheries during the past year, epidemics have broken out involving considerable numbers of adult rainbow trout and large adult brook trout. Among the large fish epithelioma of the tongue or the region of the mouth, is not uncommon. Carcinoma of the thyroid produces the most rapid destruction among young fish, frequently diffusely infiltrating the gills and also growing to great relative size in the small fish. The tumor erodes bone, destroys cartilage and infiltrates the muscular structure. The tumor presents varying characteristics, frequently retaining the alveolar type with colloid, again of a strictly adenomatous type, but in all cases with areas of complete malignant degeneration and assuming the characteristics of solid soft carcinoma.

In the study of this interesting form of cancer, the discovery of metastases formation, the evidences of immunity and the influence of blood relationship to susceptibility, show the practical identity of this affection to cancer in warm-blooded animals. The apparent absence of metastasis formation as a criticism was long since applied to mouse cancers and to-day falls to the ground in this affection. The evidence of infectivity and contagion appear to the observer to be conclusive, and when correlated in the evidence of infectivity in cancer in warm-blooded animals should prove the greatest support to the parasitic theory we have yet encountered. The marked evidence of infectivity and contagion found in carcinoma of the thyroid in fish appears to be an accentuation of similar evidence of a less convincing character found in other species. Its accentuation in this disease can be largely explained by the environment and the conditions under which fish are artificially propagated.

DISCUSSION

Dr. C. R. Stockard, New York City: Many of the infiltration phenomena in these diseased thyroids in fish may be due to the fact that the gland is not encapsulated, and that small follicles often appear among the muscle fibers and loose tissues of the bronchial region. It also seems rather strange to find the thyroid cancer more frequently among the yearling fish than among older individuals, since this is the reverse of what is commonly observed regarding cancer in other animals.

The Structure, Distribution and Variation of the Thyroid Gland in Fish

Dr. J. F. Gudernatsch, New York City: Since the thyroid gland of *Teleostei* is the seat of tumors it seemed of importance to determine its normal features. It is not a compact, uniform organ as in mammals, but is broken up into numerous single follicles which are more or less closely associated. This disintegration and the distribution of the follicles vary not only with the species but also with the individual. The follicles are located around the ventral aorta and its branches to the gills. We usually find them more densely packed in the neighborhood of these vessels, while toward the periphery their arrangement becomes less dense until they finally lie entirely separated. Their distribution extends as far as the other tissues will allow and they creep into any available place. They even invade other tissues, for instance, muscles, as in trout. Laterally the follicles reach out along the gill arteries, and if they find an especially open passage along the vessels they may then invade even the gills. The latter case is found in trout, in which genus the follicles especially show the tendency to break off from a central portion and to spread out toward the periphery. This scattering of the follicles is made possible by the fact that there is no capsule around the thyroid, and since this diffuse arrangement is found in all species examined we must consider it to be the normal condition. The thyroid gland of the *Teleostei* is thus a rather undefined organ in its shape having the tendency to give up its unity and to break up into numerous small parts. This peculiar feature renders it difficult to distinguish between a main body and detached follicles, as we cannot charply define the main body. The limits between a normal thyroid and a beginning hypertrophy are also rather indistinct, since we do not yet know how extensively the organ may normally develop in the number of its follicles or their wide distribution. This study of the thyroid demonstrates that the follicles may normally be present in regions which might be supposed to contain secondary thyroid tumors, while as a matter of fact such misplaced structures would be a part of the primarily diseased gland.

DISCUSSION

Dr. James Ewing, New York: I think that the study of Dr. Gudernatsch, showing the wide distribution of normal islands of thyroid tissue in fish, throws much light on the dissemination of tumor nodules in fish suffering with thyroid disease. While it does not affect the conclusion that in some of these animals genuine tumors of the thyroid do arise, it indicates that many of the local extensions of these tumors should not be regarded as a sign of metastasis and malignancy.

Dr. Harvey R. Gaylord, Buffalo: I have long recognized the necessity of determining the anatomic relations of the thyroid in fish, and have planned to make such a study; but I now feel that the present study has furnished valuable information in this field. I suggested in only a casual way that the anatomic relations of the thyroid in fish are, perhaps, not favorable to the early development of metastasis. The wide distribution of the islands of normal thyroid is, doubtless, partly responsible for the early extensive growth of these thyroid tumors, which often results in the death of the fish from asphyxia before metastasis can occur.

Demonstration of Tumors in Fish

Dr. Leo Loeb, Philadelphia, exhibited specimens of fish tumors, which he had received through the kidness of Mr. C. Harold Drew, in Plymouth, England. Among these were two cases (an adenocarcinoma of the liver of the rainbow trout and a tumor of the mesentery of a plaice) in which the same tumors were found in different individuals of the same species; and in the first case, at least, these two fishes were found in the same hatchery, among a relatively small number of fishes. These observations, together with another observation, by Marianne Plehn, found by Dr. Loeb in the literature of the subject, prove that the so-called endemic occurrence of tumors is not rare among fishes; and that it is not limited to the carcinoma of the thyroid in trout. An accidental occurrence could be excluded in these cases, as well as in previous observations made by Dr. Loeb in rats and cattle. In the case of the so-called endemic occurrence in rats, hereditary conditions are probably responsible for these conditions; but whether or not the same cause underlies the corresponding findings in fish, cannot be decided at present.

Teratoma Testicle and Its Derivatives: Two Rare Cases

Dr. James Ewing, New York: Primary lmyphosarcoma of the testicle was first described by Malassez and has since figured extensively in the French literature. Chevassu, an experienced French observer, has recently concluded that a primary tumor of this type does not occur in the testicle but that all such testicular tumors are secondary to original tumors in other parts of the body. This view is to some extent borne out by the observations of Debarnardi, who reported three cases of lymphosarcoma testis, at least two of which were clearly secondary, while the third was of doubtful origin. In the following case the clinical history and pathologic examination clearly indicated the existence of a primary lymphosarcoma of the testicle. The patient was a well-nourished boy of 4½ years. The parents first noticed a swelling of the right testicle about July 1, 1909, which in three weeks reached a size of a small hen's egg and gradually involved the inguinal lymph nodes and the overlying skin. About July 30 the tumor, skin and three inguinal nodes were removed. The wound healed well, but after two weeks the child became anemic and began to lose flesh. There was slight fever, but no external lymph node enlargement. Late in August several firm nodules appeared in the skin of the face and chest. The child died September 15, twelve weeks after the first symptom.

The autopsy showed the lymph nodes at the bifurcation of the aorta enlarged to the size of marbles. A few fine pin-point nodules were present in the lungs and some larger ones in the liver. These kidneys were diffusely infiltrated in several areas. The spleen was moderately enlarged. The general lymph nodes were unaffected. There was no leucemia. The tumor arose in the corpus highmori and epididymis pushing widely apart the tubules of these structures. The testicle proper was separated from the tumor by a fibrous capsule and was uninvolved. In the lymph nodes and in the main tumor the tumor cells were large lymphocytes. In the skin, liver, lung and kidney there were only small lymphocytes. That the tumor was primary in the testicle was indicated by the clinical history, the relatively large size of the original tumor, the gradual extension up the inguinal chain and the comparatively slight involvement of the general lymphatic system.

The second case was a teratoma of the testicle composed of epidermoid cysts, adult thyroid, a fibromuscular and glandular organ resembling the uterus, and carcinoma with lymphoid stroma. The tumor had been removed from a subject of 35 years who for two years had noticed a gradual enlargement of the organ. The tumor was as large as a goose egg. It contained three communicating cysts lined by stratified squamous epithelium and filled with sebaceous material. The muscular organ was surrounded by a fibrous and fat capsule. It was an elongated structure lined by glandular tissue similar to the uterine mucosa surrounded by thick irregular bands of smooth muscle tissue. Several cross sections of this organ appeared in an area of 4 cm. in breadth. About this organ lay three large islands of adult thyroid tissue. The main mass of the tumor was composed of large cell carcinoma with lymphoid stroma. The small remnant of testicle was displaced to the upper posterior pole of the tumor.

Thyroid tissue probably has not previously been described in testicular teratomata, although common in ovarian teratomata. Possibly the organ described as uterus was a stomach or prostate. The carcinomatous portion may have been one part of an original single tumor. The occurrence of a peculiar type of carcinoma in this teratoma might indicate that when this type of carcinoma occurs alone in the testicle, as it often does, it is nevertheless of teratomatous nature, other portions of the teratoma having failed to develop. The carcinoma possibly originated from fetal entodermal epithelium, and the lymphoid stroma may have been an integral part of the tumor.

(To be continued)

OHIO ASSOCIATION OF MEDICAL TEACHERS

Fifth Annual Meeting, held in Columbus, Dec. 27, 1909

There were about fifty teachers, representing various schools in Ohio, present at the meeting, and a very interesting program was carried out.

Dr. E. O. Smith, secretary of Ohio-Miami Medical College, read a paper on "Entrance Requirements," in which he advocated more uniform and higher standards of entrance, holding that while present preparatory schools were so varied in their standards the state medical board should hold entrance examinations for all applicants.

Dr. Josiah Medberry, professor of anatomy, Starling-Ohio Medical College, reviewed the work of the "Freshman Year" with especial reference to the teaching of anatomy and the elimination, in this year, of incompetent students.

Dr. Edmund M. Baehr, professor of physiology, Ohio-Miami Medical College, read an interesting paper on the "Basel Nomenclature." This paper was ably discussed by Prof. S. S. Sission of the Ohio State University; both he and Dr. Baehr agreeing that this nomenclature has special merit and should be more generally used.

Dr. G. W. Spencer, professor of physiology, Cleveland Homeopathic Medical College, urged the importance of more practical "Methods in the Teaching of Materia Medica and Therapeutics."

Dr. W. D. Inglis, professor of obstetrics, Starling-Ohio Medical College, outlined in detail the method employed by him in "Section Teaching of Obstetrics," and the importance of thorough preparation of students in this branch.

Dr. A. R. Baker, professor of ophthalmology, Cleveland College of Physicians and Surgeons, in a paper on "The Teaching of Ophthalmology," urged that a larger use should be made of the dispensary and hospital, and that practical instruction should be begun as early as the sophomore year.

Dr. J. K. Scudder, secretary and treasurer of the Cincinnati Eclectic Medical Institute, read a paper on "Medical College Management," in which he emphasized the importance of endowments for medical colleges, and of larger hospital facilities. Dr. W. J. Means, professor of surgery, Starling-

Ohio Medical College, and chairman of the judicial council of the American Association of Medical Teachers, and President Charles W. Dabney of the University of Cincinnati, took part in the discussion.

Dr. W. B. Wherry, professor of pathology, Ohio-Miami Medical College, urged the "Value of the Laboratory Method to the Medical Student," holding that it is through this agency that the most valuable instruction is to be given and that it should be carried throughout the medical course.

Dr. J. H. Jacobson, professor of gynecology and clinical surgery, College of Medicine of Toledo University, demonstrated "Some Aids to Didactic Teaching," among them being clay modeling, lantern slides and mimiographic drawings.

Dr. C. Lee Graber, professor of materia medica, Cleveland College of Physicians and Surgeons, advocated greater "Thoroughness in the Teaching of Materia Medica and Pharmacology in our Present-Day Medical Schools."

Election of Officers

Dr. Frank Winders, Columbus, Starling-Ohio Medical College, was elected president for the ensuing year, and Dr. Ernest G. Zinke, Ohio-Miami Medical College, Cincinnati, vice-president. Dr. Elmer I. McKesson, Toledo University College of Medicine, and Dr. Charles W. McGavran, Starling-Ohio Medical College, Columbus, were reelected secretary and treasurer, respectively.

Columbus was chosen as the place of next meeting which is to be held on Monday, Dec. 26, 1910.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, Held at Omaha, Neb., Dec. 20-21, 1909

(Continued from page 150)

Diffuse Septic Peritonitis

Dr. Byron B. Davis, Omaha: The decrease in the mortality of acute spreading infection of the peritoneum is due to the recognition of three important factors. First, the chief absorption from the peritoneum is carried on by the diaphragm, seconded by the great omentum. Second, the Fowler position with free tubular drainage from Douglas' cul-de-sac has proved efficient in turning the current in the opposite direction, thus removing the toxins harmlessly. The third important contribution was made by Dr. Murphy in the use of normal salt solution by his efficient method. There are also other factors which must be recognized in order to get the best results. As the transition from the older methods to those of the present was slower with some of us than with others, I can only include in my series of cases those patients operated on since January, 1907. After the exclusion of cases which cannot rightly come in the category of those under discussion, my records show that since January, 1907, I have operated on 39 patients with diffuse septic peritonitis, with 3 deaths. Thirty-five cases were due to appendicitis, with one death; 2 were caused by the perforation of a typhoid ulcer, with 1 death; 1 was a case due to puerperal sepsis, with an immense amount of free pus in the peritoneal cavity. This woman recovered. And there was one case of perforating duodenal ulcer which ended fatally. Twenty-eight were males, and 11 were females. The average age of all the patients was 26 years and 10 months. The youngest patient was a little boy, aged 5 years, and the oldest was a woman, aged 48 years, the only fatal case due to appendicitis. The appendix was removed at the primary operation in 32 cases. In the remaining 3 the condition was so serious that it was not thought prudent to attempt more than simple drainage, and the appendix was left. Two of these patients had their appendices removed by subsequent operation. The third recovered and is still carrying his appendix, but intends entering the hospital to have it removed this winter. In 4 cases fecal fistulas persisted which were cured by subsequent operation. There have been 2 patients with ventral hernia operated on, and I know of 2 others with hernia which will be operated on, if troublesome. There are probably others, as I believe ventral hernia is frequent after prolonged drainage. There has been no case of intestinal obstruction following these operations. The period of convalescence has in a few cases extended over a number of weeks, and in 2 of them 4 and 5 months respectively. In the greater number the convalescence has been comparatively brief, not longer than one expects after opening an appendiceal abscess.

A Scientific Inquiry Into the Present Treatment of Peritonitis

Dr. Arthur E. Hertzler, Kansas City, Mo.: In this paper I review the present treatment of diffuse peritonitis, taking up the various factors which go to make up this treatment and examine them in the light of established facts in abdominal physiology and pathology. I conclude that the explanation of their mode of action has but limited scientific basis. Most of the papers lauding the effectiveness of the modern treatment are unaccompanied by case reports, but those which are so elucidated show that the favorable prognosis is dependent largely on the fact that cases are included in the statistics which are in no sense diffuse. The present improved prognosis is dependent on earlier diagnosis of the disease, and a more accurate determination of the exact anatomic relation of the disease, making it possible to accomplish the necessary operative work with the least possible traumatism and loss of time. The Fowler position and the introduction of fluids into the body, either by vein or rectum, has but a minor influence in the determination of a favorable outcome. In order to facilitate the grouping of cases of peritonitis I propose the following classification: 1. The perforative. This group includes those cases in which there is expelled into the peritoneal cavity some of the contents of the hollow viscera without there having been any previous protective reaction on the part of the peritoneum. 2. The progressive, in which there is escape of visceral contents into the peritoneal cavity unprotected by adhesions, but in which the peritoneum has undergone a protective reaction. 3. Imperfectly encapsulated. This type joins the preceding without a a sharp line. Adhesions are present in some areas, but there is extension in some direction, *e. g.*, along the cecum or into the pelvis in appendicitis. 4. The peritoneal abscess, in which there is perfect encapsulation of the infected area. All peritonitides are diffuse in the beginning and the determination of the group to which they will ultimately belong depends on the relation of the factors of virulence of infection and the powers of resistance. The earlier operations are done, therefore, the greater the number of patients who will be operaed on before the condition has had time to become encapsulated.

DISCUSSION ON PERITONITIS

Dr. R. C. Coffey, Portland, Ore.: In acute perforative conditions the point of drainage will depend largely on where the perforation has taken place. In a perforation of the gall-bladder or duodenum the drainage is usually better in the right flank. Again, in perforation of the stomach near the median line, or when a patient has been transported a distance and rolled from side to side, it is essential to use the Fowler position, because in putting patients straight up the fluids will always gravitate to the bottom. Another important feature is drainage at the point of suture of the opening. If one sutures a perforated intestine and that intestine is allowed to come in contact with drainage, there is likely to be a fecal fistula; therefore, it is important to make drainage remote from the point of suture. It is also important to lift the intestines away from the drain and not insert the drain irrespective of its relation to the intestines.

Dr. Van Buren Knott, Sioux City, Iowa: I agree with Dr. Coffey that the Fowler position has had more to do with our recent success in the treatment of diffuse septic peritonitis than any other method of treatment which has been employed, although this is somewhat in opposition to the opinion of Dr. Hertzler, who maintains that early diagnosis and prompt treatment should receive the credit. In 1902, I was deeply impressed by Fowler's paper and the position advocated by him in cases of acute peritonitis. Up to this time most of my patients with diffuse septic peritonitis died, but as soon as I began to employ the Fowler position they commenced to recover. Shortly after this I read a paper before this association advocating a stab wound in the median line of the lower portion of the abdomen and drainage through the rectovesical pouch and drainage through the vagina in cases of diffuse septic peritonitis. Since then I have invariably employed this method with gratifying results.

Dr. Daniel N. Eisendrath, Chicago: There are points in the pathology and etiology of peritonitis which neither Dr. Davis nor Dr. Hertzler referred to, and as a few of these cases have come under my observation during the past three or four years it might be well to speak of them here. These are the cases in which there is genuine peritonitis, so far as the pathology is concerned, without visible perforation of the appendix or any other viscus. They are not the cases in which a perforation of the duodenum or stomach has been overlooked, but cases in which streptococci migrate along the lymph channels through the appendix wall and get into the general peritoneal cavity in that way. In looking up a series of cases at the Michael Reese Hospital in the past 10 years, I find there were 2 such cases of my own, and 5 others in the practices of Drs. McArthur, Andrews and Greensfelder. In addition to these, a number of cases have been reported in the literature. We overlook in little girls a general peritonitis from infective salpingitis. Riedel has recently called attention to this, and has held autopsies on nine little girls who had died of general peritonitis in spite of operation. He found no perforation of the appendix, but simply a marked and intense salpingitis.

Dr. Charles H. Wallace, St. Joseph, Mo.: We notice in these cases of perforation of the appendix or perforation of any hollow viscus, that if we operate within the first 24 or 48 hours, the question of drainage is a minor one if we remove the disturbing element and close the opening. We know that there is a class of cases that become so septic that we get no drainage, it matters not what we put in for the purpose. The wound looks like a wound in a cadaver; there is no exudation of serum, and in this class drainage fails to accomplish anything because the patients are beyond all hope. But in the cases of chronic abscess drainage is of great value.

Further Observations on Enterostomy and Its Technic

Dr. John Prentiss Lord, Omaha: In this paper I report 4 fatal cases in addition to the 4 successive successful cases mentioned last year. In one, the enterostomy was done for typhoid perforation peritonitis, death being due to the extension of the peritonitis. Patients 2 and 3 were operated on for appendicitis and peritonitis, death resulting from ileus due to peritonitis. In Patient 4 the condition was due to spastic ileus. The drainage was practically *nil* and the condition persisted. Enterostomy was recommended above the line of suture as a vent in resections of the distal half of the large bowel in order to prevent distention from gas which is responsible for the greater number of failures in the suture of this portion of the large intestine. The simple technic by three purse-string sutures about a large catheter is an easy, quick and ready means of draining the bowel of gas and feces. It is life-saving, and may save life in some otherwise hopeless cases of obstruction due to peritonitis. The fatal cases reported were extreme ones, and the operation was done as the only remaining recourse.

(To be continued)

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Twenty-second Annual Session, held at Hot Springs, Va., Dec. 14-16, 1909

(Concluded from page 152)

Pancreato-Enterostomy

Dr. R. C. Coffey, Portland, Ore.: The drawback to the development of pancreatic surgery has been that during embryologic development the pancreas has been rotated out of the peritoneum. The peritoneum produces an exudate when injured which serves the same purpose as callus after a fracture. The fat-splitting ferment of pancreatic juice does not readily penetrate peritoneum, but is serious when spilled in the retroperitoneal areolar fat spaces or between the layers of the mesentery or omentum. The problem to be solved in direct pancreatic surgery is to supply peritoneum to the operative field. This is best obtained from the outer coat of the intestine by inversion. The lumen of a single intestine is too small. Therefore, it has been necessary to throw the two lumena of an intestinal loop into one which, after inversion, gives an ample peritoneal canal into which the cut end of the pancreas is implanted. Using this method the following classes of operations were done:

The tail of the dog's pancreas was cut in two and each cut end implanted into a separate loop of jejunum. Of four dogs recovered, each showed perfect union between pancreas and intestine; but no pancreatitis nor necrosis. In isolating the tail of the pancreas the pancreatic duct was found patent and delivered into the intestine. The connected end of the pancreatic duct was closed by a thin tough film, the juice all going through the duct of Wirsung. The same thing occurred when the duct was ligated by a linen ligature but not cut, for the ligature was circumvented in all cases, and the juice was freely delivered back into duodenum through the duct which was established around the ligature. By ligating and cutting both ducts of Wirsung and Santorini and interposing omentum, and implanting the cut end of the tail, the juice of the other tail and body was freely delivered into the loop of jejunum through the implanted tail and its duct maintained.

The head of the pancreas and one tail and the duodenum were successfully removed in two stages. First, the bile duct was transplanted to intestine lower down and a gastroenterostomy was done with excision of pylorus. Second, two weeks later the body and one tail of the pancreas and section of duodenum were removed and the remaining tail implanted into the jejunal loop. The results were the same as in the previous cases. In all five cases the specimen showed enormous dilation of the common and hepatic ducts, and in one instance the bile duct was almost as large as the duodenum, and almost as thick. The communication with the intestine was free enough to admit the end of the little finger, the distention evidently being due to intraintestinal pressure; therefore an indirect method was devised, which consisted of running the duct immediately under the mucous membrane for an inch before bringing it inside. The results in the three specimens removed, two of which were of two months' standing, showed that a perfect valve had been formed and that no dilatation had occurred, the ducts being entirely normal in size and thickness.

Encouraged by these results, I am now conducting a series of experiments in which the ureter is implanted into the large intestine in the same manner with the hope of preventing ascending infection here. Direct implantation of the stripped pancreatic duct was tried in six cases. While one dog lived to be killed on the twenty-fourth day and was in good health, it was found that the duct connected with the intestinal lumen only by a fistula. Four of this group of dogs died before the sixth day, showing pancreatic necrosis. One died on the tenth day. One fact stood out in all the six cases, namely, the pancreatic duct dies as soon as it leaves the pancreas, thus leaving the inference that the pancreatic duct probably receives most of its nutrition from adjacent pancreatic substance, and will not bridge the chasm between the gland and intestine, as is done in the case of the bile duct and ureter.

DISCUSSION

Dr. Joseph C. Bloodgood, Baltimore: The cause of death in acute hemorrhagic pancreatitis has been said to be due to trypsin and perhaps other ferments free in the peritoneal cavity, and present in the blood, and these ferments produce disseminated fat necroses. If one can make a diagnosis of acute pancreatitis the abdomen should be opened and the fluid allowed to flow out and the region of the pancreas drained to prevent further intoxication with these ferments. The question of the operative treatment of acute hemorrhagic pancreatitis is settled, and that is, evacuation of the peritoneal exudate and drainage of the pancreas.

Dr. Stephen H. Watts, Charlottesville, Va.: During the present year I have had two cases of acute pancreatitis and one of the sub-acute variety. One of the most interesting things in these cases is the presence of hemorrhage in acute pancreatitis, and it is a question in my mind as to the relation of this hemorrhage to infection in the gland, as to whether or not hemorrhage precedes or follows infection or pancreatitis. Dr. Ransohoff has not found infection in his early cases, as the cultures have been negative. It seems as if in many of these cases there is an arteriosclerosis which may give rise to the first hemorrhage, and that the blood subsequently becomes invaded through the intestine or biliary tracts.

Dr. Roswell Park, Buffalo: At the time President McKinley was shot we did not know much about the surgery of the pancreas, and when seeking an explanation for the peculiar necrosis which we found in his case, I suggested that in all probability the wound of the pancreas had to do with the subsequent course of events. I really believe now that this wound of the panceras had much to do with it. I believe that unfortunate instance directed surgical attention to the surgery of the pancreas in a way which it would not have done had not that sad event happened.

Dr. Charles H. Mayo, Rochester, Minn.: I was impressed by Dr. Guerry's statement regarding cholecystenterostomy. No doubt this operation should be more frequently done. If jaundice is present, with hardening of the pancreas, and no gall-stones, then we should at once think of the advisability of doing this operation. The question of doing it in simple inflammatory conditions, such as cholecystitis, is something for the future to decide. These are not the gall-bladders that we would remove to-day, but they are the ones that lead to further operation.

Dr. H. A. Royster, Raleigh, N. C.: Two months ago a man of 70 consulted me, giving a typical history of gall-stones. He had had jaundice only once, and that had disappeared entirely. Examination of the urine three days before operation showed a well-marked reaction to sugar. I opened the gall-bladder, removed 180 gall-stones, and drained in the usual manner. The head of the pancreas was enlarged. One week after the operation the sugar disappeared entirely from the urine and has not returned.

Dr. Walter C. G. Kirchner, St. Louis: Of five cases of pancreatitis I have seen three which were of the suppurative type, and resulted fatally. In two of these cases a diagnosis was made, but the conditions were so fulminating that operative procedure did not seem to be indicated, or by the time the patient reached the hospital his condition did not warrant operation. In one case in which a pathologic diagnosis was made of hemorrhagic pancreatitis there was no hemorrhage in the abdominal cavity, but the pancreas itself was involved. This patient gave all the acute symptoms of pancreatitis, and at the autopsy an ulcer of the duodenum was found, which had a direct communication with the head of the pancreas.

Dr. George W. Crile, Cleveland: In making cultures from the gall-bladder in these cases of chronic infection or of chronic pancreatitis, I have seen much better results from the use of autogenous vaccines than from drainage alone, that is, following the use of autogenous vaccine plus the drainage. Furthermore, large doses of utropin (hexamethylenamin) for a certain period of time are of value. Again, in cases of acute hemorrhagic pancreatitis I would call attention to the value of nitrous oxid anesthesia.

Dr. John C. Munro, Boston: Dr. Guerry's paper reminds me of a case in which I did a cholecystenterostomy six or eight years ago for a lesion at the ampulla, but which proved to be a case of chronic pancreatitis. A diagnosis now can undoubtedly be made both in the chronic and in the acute forms of pancreatitis in a fair number of cases. I have had a number of acute cases of pancreatitis, and in a fair proportion of them have been able to make an accurate diagnosis before operation. The type of jaundice both in the acute and chronic forms is rather significant, although it is not an absolute sign on which to depend. I favor operating in very acute cases.

Dr. O. H. Elbrecht, St. Louis: I would like to report briefly a case which differs somewhat from those mentioned. It was a case of chronic pancreatitis, the patient coming from an insane asylum, presenting the picture of an acute gall-stone attack, with profound icterus. The pain was severe. The case was diagnosed as gall-stones, with probably the escape of the gall-stone through the intestinal wall. A definite lump could be felt in that region, and we found dense adhesions everywhere, and an immensely distended gall-bladder. The gall-bladder was drained. As the patient was in a bad condition we did not care to explore the region of the pancreas, as it was not suspected at the time. The patient died the next day, and autopsy revealed the case to be one of primary tuberculosis of the pancreas. Sections were made from an ulceration at the tip of the pancreas and found to contain innumerable tubercle bacilli.

Frequency of Cancer

Dr. Roswell Park, Buffalo: Cancer is one of the most important problems which confront the medical profession to-day. I believe that cancer is on the increase as a disease of modern life. When I began work in this direction there were in New York State 14,000 deaths from tuberculosis each year and about 5,000 deaths in cases of cancer.' Now, the mortality from tuberculosis has been reduced to 11,000 or 12,000 cases a year, while the mortality from cancer has risen to nearly 8,000. Studies have established the fact that cancer is prevalent in certain localities and in certain houses, and that there are certain places where cancer is more prevalent than in others, and that in a considerable number of houses several deaths from cancer had taken place. With regard to heredity, it is now stated as a fact that the disease is not transmitted by inheritance; but there is a possibility of the transmission of predisposition. This is an important question for the laity and for us. The infectivity of cancer is quite generally established. Last year, at the meeting of the International Congress of Surgeons in Brussels, the question of cancer was discussed for three separate days, and some 300 who were present out of a membership of 600, I found the majority of surgeons present believed in the infectivity of cancer. There are still some doubters of this theory. The very fact that metastases occur during cancer is the best demonstration of its infectivity, and for me every instance of metastases in a given case is an expression of a reinfection from the original source. As to the contagiousness of cancer, we have far more proof for its contagiousness than leprosy, or some other diseases that are considered more or less contagious. The early diagnosis of cancer is difficult, and in many instances impossible. Cancer has no definite symptomatology. If cancer could be early diagnosed or recognized, and if it were accessible to our present means of attack, and if it were thoroughly removed it could be curable, but there are "ifs" standing up in tremendous proportion, and they are insuperable, apparently.

Suture of the Recurrent Laryngeal Nerve

Dr. J. Shelton Horsley, Richmond, Va.: After a thorough search of the literature I have been unable to find a report of any case in which the recurrent laryngeal nerve was sutured. Considerable experimental work has been done, chiefly by those interested in veterinary surgery, in which the left recurrent laryngeal was divided and implanted higher up in the vagus. Most of these experiments have resulted successfully, so far as restoring the function of the laryngeal muscles supplied by the left recurrent nerve is concerned. I here report a case in which the left recurrent was injured by a bullet wound. The patient was referred to me about three months after the injury. The individual was examined by a laryngologist, and all the muscles supplied by the left recurrent laryngeal were found completely paralyzed. An incision was made along the anterior border of the sternomastoid muscle and the injured nerve was easily found in the groove between the esophagus and trachea. The diseased portion was excised, except a small filament consisting of the posterior part of the nerve sheath. The ends of the nerve were brought together with a single suture of No. 0 chromic catgut in a fine curved needle. Some muscle tissue was drawn over the sutured nerve. The wound healed by first intention and the patient left the hospital nine days after the operation with no improvement in voice or in breathing at that time. The improvement was gradual, however, and two reports from a laryngologist were made after the operation. The first about two months after operation showed improvement in the muscles and the second report, fifteen months after the operation, stated the laryngeal muscles supplied by the left recurrent laryngeal nerve had fully recovered. The case is apparently unique.

Treatment of Wounds of the Heart; with Report of Two Cases

Dr. Walter C. G. Kirchner, St. Louis: In reviewing the subject of injuries to the heart I wish to say that at the St. Louis City Hospital there have been five cases of cardiorrhaphy with three recoveries. I here report two of my own cases, one patient dying four hours after the operation, the other making a successful recovery. In the first case there were two wounds of the ventricles, and in the second there was a wound of the heart one and three-fourths inches in length, which penetrated the left ventricle. From these cases I draw the following conclusions: The heart may be manipulated without serious injury to the organ and is amenable to surgical interference and procedure. Hemopericardium with heart tamponade is a serious complication and demands prompt drainage of the pericardial sac. In suspected injuries to the heart the wound in the chest should be carefully explored so that the extent of the injury may be determined, and in cases of doubt, exploratory pericardiotomy is indicated. Small wounds of the heart may heal spontaneously, but in all cases in which hemorrhage from the heart exists, the wound should be promptly sutured. In operations on the heart, when pulsations suddenly cease, massage of the heart and artificial respiration should be tried as aids in resuscitation. With a minimum amount of anesthetic the healthy lung is capable of performing its function, though to a less extent, even when the pleural cavity is exposed. Time is an important factor in injuries to the heart, and an early diagnosis should always be made. The immediate treatment should be directed to the control of hemorrhage and shock. The chief remote complications result from infections of the pericardium and pleura. In treating injuries to the heart the surgeon should have in mind a definite plan of attack, and the kind of flap to be used in approaching the heart should be determined by the nature of the wound in the chest.

Circumscribed Serous Meningitis of the Cord

Dr. John C. Munro, Boston: An interesting paper on this subject, by Spiller, that appeared in the *American Journal of the Medical Sciences*, January, 1909, explained a condition which I had observed a number of times at operation and for which I had previously obtained no satisfactory explanation. At the time of my earlier cases (1897), I reported the findings to pathologists who not only gave me no light on the subject but even questioned the existence of the lesion. In a small collection of cases of laminectomy reported at the American Medical Association in 1904 I called attention to one with syringomyelia and to another diagnosticated as subacute fracture-dislocation, in which I found a "collection of clear fluid under a distinct arachnoid membrane," in which the removal of this fluid produced marked amelioration in the pressure symptoms. This phenomenon and the relief that followed the removal of a soft extradural myeloma in another case led me to say that there is a something that produces grave paralysis that is demonstrated clinically, which appears totally inadequate and for which we have no corresponding experimental nor post-mortem explanation. That the lesion had been observed by Krause and a few others was unknown to me at the time. A clinical lecture by Horsley appearing soon after Spiller's paper has stimulated me to report my own cases in detail in the hope of arousing surgical interest in a class of patients who otherwise would be condemned to a slow, inevitable and distressing death. The pathology is that of the living rather than of the dead, as the condition has been revealed in the majority of instances at the time of operation for suspected tumor. A definite thin pial membrane is forced through the dural wound and when it is opened clear fluid escapes under abnormal pressure. This pial membrane is so definitely an entity that it may be dissected out as a cyst. The cord may or may not be flattened by this local collection of fluid.

No definite cause is known for the lesion. Trauma, syphilis, caries, tuberculosis, glioma, influenza, gonorrhea have all been more or less intimately associated with the lesion. In other cases nothing can be found as the primary cause. The important thing for us to recognize clinically is the fact that such a condition may exist and that laminectomy is the only rational treatment. In uncomplicated cases the outlook is most encouraging. In complicated cases most distressing suffering can be relieved. There is always pain which at times is intolerable. It may start as a lumbago; it may be girdle-like; it is diffuse and not referred to one nerve root. Paralysis begins generally as weakness of the lower limbs. Spasticity is almost always present and sooner or later there is paraplegia sufficient to render the victim bedridden. Sometimes there is urinary and fecal incontinence; sometimes the upper extremities are more or less affected. Spasmodic contractions, excited by a light touch, are often most distressing. In simple cases the limbs are well-nourished, the muscular power is good and there is no trophic disturbance. The reflexes vary among individuals and in the same case. Anesthesia may be absolute or very slight. It varies in different regions in the same case and from time to time. So also may the other phenomena of sensation. The onset may be short, a few days after traumatism, and years in other types. Laminectomy by relieving the localized pressure cures the uncomplicated case. Lumbar or local puncture is futile.

Abdominal Cesarean Section for Puerperal Eclampsia

Dr. Lane Mullally, Charleston, S. C.: I wish to report four cases of puerperal eclampsia. The first two patients were brought into the hospital with the usual history of eclampsia, each having had convulsions for about six hours before being admitted. The first was delivered under anesthesia by dilatation, instrumental and manual and high forceps, and the second by similar dilatation and version, each case occupying from one to two hours. In the first case convulsions continued for twelve hours, when the patient died. The second patient had several convulsions after delivery and recovered. The third, a multipara with considerable scar tissue in the cervix, was anesthetized and an hour or more uselessly spent in attempted dilatation. Finding it impossible to dilate the cervix, I decided on abdominal Cesarean section and delivered the child in seven minutes. The whole operation when completed occupied twenty-seven minutes. The case was a six-months' pregnancy and the child was dead before the operation was begun. In the fourth case of full-term pregnancy the woman had convulsions every fifteen minutes. In this case I did an abdominal Cesarean section at once, delivered the child in six minutes, closed the wound and the patient was returned to the ward in twenty-six minutes from the time operation began. Recently abdominal Cesarean section, with the perfect technic of the present day, has materially lowered the maternal mortality and the operation is selected not only on this account, but also because it offers better advantages in saving the life of the child than many of the intrapelvic methods of delivery. The operation is far less dangerous than high forceps version and, I believe, vaginal Cesarean section. Granting rapid evacuation to be the rational treatment, I contend that it is best accomplished by abdominal Cesarean section.

President's Address: Neurasthenia and Surgery

This paper by Dr. Stuart McGuire, Richmond, Va., will appear in The Journal.

The Diagnosis of Hyperthyroidism or Exophthalmic Goiter

Dr. Charles H. Mayo, Rochester, Minn.: An effort has been maintained to consider hyperthyroidism a finished product to be diagnosed as such only within the narrow limits of the imperfect descriptions of the few cases described by Parry, Graves and Basedow nearly a century ago. It was not considered that the thyroid played a more important part than the heart or nervous system. Many marked cases failed in some particular and were classed as fruste or pseudo until the lacking symptom appeared. There is a present tendency to drop some of the old classifications and acknowledge that there are various stages: acute, chronic, mild, severe and irregular forms based on an increase, probably with some changes of secretion and its delivery. The laboratory findings should show an increase in parenchyma, (a) more cells in the alveoli, (b) more alveoli, (c) papillomatous increase of cells in existing colloid goiter. These changes may be general or in scattered areas. Terminal degeneration of essential organs follows degeneration of the gland in the advanced cases. In this stage the patient may be improved and the disease checked, but not cured by operation. Forms of myxedema are not uncommon in patients who have survived the hyperthyroidism until degeneration destroyed the major portion of the gland. Eye symptoms and heart signs must be differentiated from chronic Bright's disease, and from myocardial changes. Leucemia of the neutrophilic polymorphonucleears and the percentage and absolute increase in the lymphocytes should be looked for as diagnostic laboratory aids of some importance. An early diagnosis has become more important since surgery invaded this field than when it was purely medical, in order that a prognosis of the probable result of an operation can be given. In some cases this may mean before eye changes appear, and in others before the goiter becomes a prominent feature.

An Experimental and Clinical Research into Nitrous-Oxid and Ether Anesthesia

Dr. George W. Crile, Cleveland, O.: In my service we have given nitrous oxid 575 times for major operations. Among these are included many of the hazardous risks in which ether was contraindicated. Comparing the nitrous-oxid cases with ether cases nausea occurred in 17 per cent. as compared with 42 per cent. in ether. This includes all cases. Postoperative nausea is, of course, not wholly due to the anesthetic, i. e., peritonitis and certain visceral operative trauma may cause nausea independently of the anesthetic. Nausea in nitrous-oxid cases in which there is no other nausea-producing factor rarely occurs. In the course of the operation, nausea, in nitrous oxid, as in ether, is usually due to uneven administration. At the conclusion of the operation the patient is fully awake and in unclouded possession of all his faculties in two or three minutes. There is unmistakably a great diminution in surgical shock. Indeed the immunity from shock is as striking in the clinic as in the laboratory. I am well aware that the shock in the routine cases, free from predisposing complications, is rare; but in the cases most urgently demanding surgical relief, such predisposing causes are present, and frequently constitute the principal factor of the immediate risk. It is here that nitrous oxid appears at its best. Then, too, in infections since using nitrous oxid as contrasted with ether we are equally certain that ether as compared with nitrous oxid impairs the immunity of the patient. The difference is so striking that only a great emergency would now induce us to use ether instead of nitrous oxid in grave infections. In a parallel series of acute infections consisting of 75 cases operated under nitrous oxid and 75 under ether, the technic and the after-treatment being constant factors, careful records were kept at the time of the operation and in bedside notes. At the time of operation the average pulse of the ether patients was 114; and the average of all the pulse observations during the first twenty-four hours following operation was 117. While in nitrous oxid the average pulse rate at the time of operation was 115, the average of all the counts during the first twenty-four hours following operation was 105. In ether there was an average increase of eight beats; in nitrous oxid there was a decrease of ten beats. In every other respect also the patient showed a more distinctly favorable course after nitrous oxid than after ether. Not a case showed the rapid march to fatality immediately following the operation which occasionally follows ether. Nitrous oxid as compared with other general anesthetics is technically difficult and expensive. It has certain dangers which are almost wholly in the control of the skilled anesthetist; it is not the anesthetic of choice for the uninitiated, but only for the highly trained anesthetist. Properly supplemented and skillfully given, it may be used as a routine anesthetic in general surgery. Once the operation is over, the patient is strikingly better off than after ether anesthesia. The rôle of shock and infection is far less in nitrous oxid than in ether anesthesia, and accumulating evidence seems to show that there is a distinct diminution in post-operative neurasthenia. In routine operations the combinations of scopolamin and morphin given from one and one-half to two hours prior to nitrous-oxid anesthesia forms so effective a combination that in over 50 per cent. of my patients the day of operation is robbed of all operative memory, and in the remainder it dulled the edge of both the physical and the mental distress.

Gall-Stones and Cancer of the Gall-Bladder

Dr. Albert Vander Veer, Albany, N. Y., detailed his observations on this subject. Of 77 cases not previously reported there were 19 males and 58 females, illustrating the fact that females suffer more than males from gall-bladder complications. The diagnosis before operation of the 77 cases was as follows: Gall-stones, 64 cases; cholecystitis, 10 cases, and gall-stones and carcinoma, 3 cases. Operation revealed a variety of conditions. A study of the mortality list showed that stones in the common duct of long standing are very difficult to reach, and that the percentage of deaths is much greater here than in simple cholecystotomy, where there were no such complications. The mortality in the latter cases is very small. One case of the group illustrated most forcibly that marked cholemia is not always fatal after an operation. The experience of surgeons throughout the world during the past ten years indicates that early diagnosis is of the greatest importance to the affected individual. Drs. W. J. Mayo and Charles H. Mayo may be quoted as follows: "In reviewing the mortality of 1,000 operations for gall-stone disease we have been impressed with the very fortunate outcome where gall-stones were in the gall-bladder and therefore were complications. In the 1,000 cases there were 50 deaths, or an average mortality of 5 per cent. The death rate in 820 cases where the disease was confined to the gall-bladder and for benign conditions was 3 per cent. In 416 cases of simple gall-stone disease the mortality was less than 0.5 per cent. The common duct operations amounted to 14.6 per cent. of the whole. In 137 operations for common duct stones the mortality was 11 per cent. In 40 cases, or 4 per cent., malignant disease was discovered, and the operative mortality was 22 per cent. In practically all of these cases gall-stone irritation had been the cause of the development of cancer."

Incisions to Expose and Open the Kidney

Dr. Howard A. Kelly, Baltimore: In this paper I point out the almost universal abandonment of transperitoneal incisions in approaching the kidney and call attention to the vagueness of view in reference to the lumbar incisions. This vagueness or lack of certainty as to the incision is due to the kidney's situation high up under the ribs and close to the diaphragm. The type of incision must vary with the nature of the kidney affection. In simple conditions, such as movable kidney and hydronephrosis, the kidney can readily be luxated; therefore, there is not the same necessity for getting down immediately on the pedicle as there is in dealing with malignant tumors. An important anatomic landmark, the superior lumbar triangle, has been neglected by anatomists and surgeons. I propose it as a splendid starting point for all kidney incisions to expose a movable kidney, cutting down on the superior lumbar triangle and pulling the muscles apart with blunt force will suffice. This simple incision, which can be the beginning of all incisions, can be lengthened by cutting downward across the lateral muscles of the abdomen, and can be further lengthened by continuing up through these muscles parallel to the costal border to the edge of the rectus muscles. In this way, a flap of the thorax can be turned upward and the upper pole of the kidney and its pedicle directly reached *in situ* without luxation. The cutting of from two to three ribs posteriorly facilitates this.

Acute Suppurative Peritonitis from a Ruptured Pus Tube

Dr. J. Wesley Bovée, Washington, D. C.: I have collected 56 cases of this character that, with the exception of my case, had been previously published. I consider the condition of tube perforation occurring so suddenly as not to permit Nature an opportunity to create a barrier to the outpouring of an infectious fluid accumulation as very rare. In this opinion I believe I am supported by the small number of recorded cases and the termination of them. The symptoms are similar to those of tubal pregnancy, undergoing rupture or abortion. The collapse, however, is usually greater in this condition than in tubal abortion, and later the symptoms of peritonitis afford ample ground for making a correct diagnosis. Of the 56 cases included in my table, 18 patients died without the peritoneal cavity having been opened, and necropsies were relied on for a diagnosis, except in one of Boldt's cases. In the other 38 patients, all operated on by having the peritoneal cavity opened, though perhaps only drainage was added to the procedure, 14, or 37 per cent., died. In one no result was given, and in the 23 remaining successful operations, 20 were done during the first day following rupture. But the mortality rate of the operations done on the first day *after* rupture, in which the results were reported, was 21 per cent., or 5 in 24. For those done on the second day it was 100 per cent. (3 in 3); for those done on the third day, 67 per cent. (2 in 3), done after the third day, 57 per cent. (4 in 7).

Therapeutic Adaptations of Cecostomy and Appendicostomy

Dr. Charles A. L. Reed, Cincinnati, Ohio: These operations, now being done largely at the instance of medical men as adjuncts to their treatment of certain otherwise intractable cases, are based on the principle that disease within the *colon calls for treatment addressed to the colon.* The advantages of this method of access embrace (a) exemption of the stomach from medication, (b) escape from impairment of the general health from deranged digestion incident to medication, and (c) relief from the uncertainty of remedies that have been subjected to indefinite and undeterminable chemical reaction in the upper digestive tract. The anatomy of the parts point to cecostomy rather than appendicostomy as the operation of choice. Among the conditions for which ostiomatic operations on the cecum are now being successfully employed are: (1) amebic dysentery, in which it opens the way to treatment *more phenomenally successful than* has heretofore been realized in the history of this malady; (2) chronic catarrhal or mucous colitis, usually very intractable, but which, as shown by my own cases, are cured by this method more promptly and in larger percentage than by other treatment; (3) chronic constitpation depending on atony and not complicated with enteroptosis is readily brought under control as indicated by my own reports confirmed by those of other surgeons; (4) acute septic peritonitis, in which, after operation, the cecum is opened and utilized to flush the colon—"a hot water bottle on the inside"—followed by saline infusion by the drop method—"coloclysis;" (5) defective flora of the colon is remedied by the installation through the cecal tube of bacilli chiefly of the lactic acid series; (6) antointoxication of intestinal origin is successfully treated by repeated flushings of the colon through the cecum, the cases recorded embracing cures by this method in chronic headaches, iodiopathic epilepsy, rheumatoid arthritis and pernicious anemia. My recorded experience and that of other surgeons force the conclusion that: *First*, the establishment of *colonic irrigation* through the cecum, whether by cecostomy or appendicostomy, is a procedure attended with the minimum surgical risk; *second*, the application of the *operation as an adjunct* of medical practice is based on the principle of direct treatment of the colon for conditions that are local to the colon; *third*, the results so far realized justify the continued use of the operation and the more extended application of the principle that it embodies.

Surgical Treatment of Epilepsy

Dr. W. P. Carr, Washington, D. C., made a further report of results of 20 operations for idiopathic epilepsy of severe type and long standing:

Six of the 20 patients may be called cured, having passed three or more years without seizures. All except one of these 6 have been well for 4 years or more. One as long as 10 years. With one exception, those not cured were benefited in being free from convulsions for from 2 to 17 months, or in having them in much lighter form and at greater intervals. One was not improved. The operation has not been tried in a systematic way since improved technic has made it possible and safe results warrant a further trial by surgeons of experience in brain surgery. The operation consists in making a large osteoplastic flap and examining the brain carefully for neoplasms, cysts, thickened patches of dura, exostosis or depression of the skull, and any other abnormal conditions. These should be removed when possible. In many cases nothing will be found but a chronic edematous encephalitis. *Draining of the superabundant serum* in such cases gives always temporary and sometimes permanent relief. The operation is safe; no patients have died, and the more extensive explorations have given the best results. He has declined to operate in mild cases having not more than three or four seizures a month, as the subject is still *sub judice*, and positive results cannot be guaranteed in any given case. But if even one or two bad patients can be cured in a hundred the *operation is justifiable* and well worth trial. The making of large osteoplastic flaps has done for brain surgery what the Sim's speculum did for gynecology, and free and extensive examinations of the brain are now possible and safe. Consequently, in obscure diseases, exploratory *craniotomy* is as justifiable as exploratory laparotomy for obscure *abdominal* lesions. We should no longer allow patients to die from hemorrhage of the brain even when the clots are situated at the base or when they cannot be located before operation.

Surgical Shock

Dr. J. G. Earnest, Atlanta, Ga., gave a description of three cases illustrating some of the phases of surgical shock. In the first very pronounced and profound shock occurred from what would seem to be a trivial cause, uncomplicated with either drug or hemorrhage, and seemed to the author to favor the theory of reflex paralysis rather than reflex spasm. The second case was a prolonged fight for life, in which the patient was kept alive and finally saved by artificial respiration and electricity. The third was apparently one of delayed shock.

Skin Sterilization by Tincture of Iodin

Dr. I. S. Stone, Washington, D. C.: There are several good reasons for the use of a better method of skin sterilization, the chief of which are as follows: 1. To save time. The patient is ready for operation immediately after sleep is induced by the anesthetic. No time is spent in washing, etc., which to be effective requires at least ten minutes. 2. The patient may be kept warm and dry during the entire seance, including the time of anesthesia and operation. 3. If the incision must be extended or one made in another place, this quick method is most desirable. 4. The operator's hands may be sterilized with iodin, as the stain can be removed by a weak solution of aqua ammonia.

Gastromesenteric Ileus Following Gastroenterostomy

Dr. Thomas C. Witherspoon, Butte, Mont.: I here report a case which teaches, first, the uselessness of gastroenterostomy as a means of drainage for a paralyzed stomach; second, the need of early stomach washing before marked paralysis and dilatation can be detected to relieve tension and possibly to diminish intoxication; third, if after several washings the stomach continues to dilate, the necessity of making free drainage by means of gastrostomy should be considered; fourth, the necessity of keeping the stomach and bowels as free from alimentary material during the first week or ten days after operative procedures on the alimentary canal as the patient's general condition will allow. Nitrogenous foods are the most harmful. Having seen a reasonable number of these cases and believing the majority of gastromesenteric ileus attacks to be due to a similar cause, this case throws light on the entire class. It is reasonably apparent that the attack resulted from a trophic change in the spinal segment which has to do with innervating the stomach. The probability is that injury, operative shock, psychic shock, over-feeding and other causes which upset normal alimentary function or lead to intoxication might bring about this condition. Every case of gastromesenteric ileus which resists stomach washing might well be drained by a gastrostomy, and such *a drain might be maintained* until the stomach wall regained its tone.

The officers elected were given in The Journal, Jan. 1, 1910, p. 60.

Medicolegal

Osteopaths Must Secure Regular License to Practice Medicine —Constitutionality of Practice Act—"Medicine" Defined

The Court of Criminal Appeals of Texas affirms, in Ex parte Collins (121 S. W. R. 501), a refusal to release the petitioner on a writ of habeas corpus, after his arrest for practicing medicine without a license as required by the act of 1907 of the Thirtieth Legislature. It says that he demanded his discharge on the ground that the act was unconstitutional, which provided that an osteopath should pay a license, because the evidence showed that he used no medicine or drugs to relieve the patient, and therefore there was no evidence from which the court could conclude that he should be held in custody on a charge of practicing medicine without a license.

Section 13 of the act reads: "Any person shall be regarded as practicing medicine within the meaning of this act (1) who shall publicly profess to be a physician or surgeon and shall treat or offer to treat any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof; (2) or who shall treat or offer to treat any disease or disorder, mental or physical, or any physical deformity or injury by any system or method or to effect cures thereof and charge therefor, directly or indirectly, money or other compensation." The court holds that the decision appealed from was correct, and that the statute is in all respects constitutional.

Nor does the court agree with the contention that section 31 of article 16 of the Texas Constitution, which says that the legislature may pass laws prescribing the qualifications of practitioners of medicine in that state, and punish persons for malpractice, but no preference shall ever be given by law to any school of medicine, limits the power of the legislature in authorizing the licensing of practitioners to practitioners of medicine; or that as the relator, as he is called, in practicing osteopathy used no medicine, therefore he did not come within the provisions of the act. As the court understands him on this point, he conceded that the statute was broad enough to cover his offense, but that the constitutional provision just cited limited the power of the legislature to the regulation of the practice of medicine, and that osteopathy was not practicing medicine.

However, the constitution, when it demanded the regulation of the practice of medicine, the court says, was not attempting to say that the legislature was limited to any mode or method of healing in order to regulate it; but the word "medicine," used in the constitution, means the art of healing by whatever scientific or supposedly scientific method may be used. It means the art of preventing, curing, or alleviating diseases, and remedying, as far as possible, results of violence and accident. It further means something which is supposed to possess, or some method which is supposed to possess, curative power; but if this definition of medicine is not correct, as stated in the constitution, yet there is no limitation on the power of the legislature in said provision of the constitution which inhibits the legislature under its police power to prevent any one practicing any species or character of remedy to cure any real or supposed ill that the body has or is subject to for pay.

Acts with somewhat similar provisions to the act of the Thirtieth Legislature now under consideration were held constitutional by the Supreme Court of Texas in the case of Dowdell vs. McBride, 92 Tex., 239; also by this court in the case of Logan vs. State, 5 Tex. App., 306. So the court holds that osteopathy is one of the methods of curing the ills to which human flesh is heir, and is one of the methods of curing covered by the act of the Thirtieth Legislature. In other words, in order for one in Texas to practice osteopathy for pay, he must secure a license, as provided for by the act of the Thirtieth Legislature. This the relator did not do. The court accordingly holds that he must be remanded to the custody of the sheriff, where he will be called on to answer the complaint and information relied on in this case.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

January 1

1 *Radium as a Specific in Giant Cell Sarcoma. R. Abbe, New York.
2 Horizontal Oscillation of the Eyeball in Certain Rare Types of Pontine Lesions Resulting in Seventh Nerve Palsy. L. P. Clark and H. H. Tyson, New York.
3 *Unusual Manifestations in Cretinism. L. S. Manson, New York.
4 Diagnosis and Treatment of Peptic Ulcer. C. E. Nammack, New York.
5 Modern Views Concerning Diseased Tonsils. C. M. Harris, Johnstown, Pa.
6 Tuberculin in Ophthalmic Practice. L. C. Peter, Philadelphia.
7 Nephroptosis. M. I. Knapp, New York.

1. **Radium in Giant Cell Sarcoma.**—Abbe reports 11 cases of extensive inoperable giant cell sarcoma in which the use of radium gave great satisfaction, a cure resulting in each case without a recurrence. A tube of radium of varying strengths was imbedded in the mass for from 10 minutes to 53 hours on one or more days, depending on the size and extent of the growth.

3. **Cretinism.**—B. H. and O. H., male twins, were both wet-nursed until 16 months of age; began to walk and talk at the proper age and appeared to be perfectly normal in every way except that they were extremely fat. B. H. when 11 years of age, while playing out of doors, suddenly became unable to walk and had to be carried home. He was kept in bed for two weeks. With the inability to walk there was considerable pain about the hips and thighs which troubled him occasionally, becoming, however, less and less frequent in occurrence. Two years later his gait became wabbling, the body swaying from side to side, and is manifested at the present time, ten years later. He began to have spells of unconsciousness with tonic and clonic spasms and frothing at the mouth, which spells became more and more frequent, until in October, 1906, they had become almost a daily occurrence; were both nocturnal and diurnal, some severe and some mild, and of very short duration, indicative of occasional attacks of petit mal besides the seizures of grand mal.

O. H., except for being very fat, showed nothing abnormal until 14 years of age, when he developed a staggering gait. He walked like a drunken man and complained of severe pains about the hips. He was treated by means of an extension apparatus, but without any improvement, the staggering gait remaining the same and a similar unsteadiness developing in the upper extremities so that he was utterly unable to use a typewriting machine and found considerable difficulty in using his hands to write.

Both boys were sent to public school at the age of 7 or 8 years, O. H. remaining until 17, and B. H. until 19; both were slow to acquire knowledge, B. H. being the more backward of the two. In both boys the hair of the scalp became thin and sparse while on the rest of the body the growth of hair was excessive, they being compelled to commence shaving the face at the age of 13, B. H. six months sooner than O. H., in whom the loss of scalp hair took place later and the excessive growth over the rest of the body is not so pronounced. The thyroid in both boys was so very rudimentary as to be scarcely perceptible and difficult to map out.

Manson diagnosed the cases as cretinism with unusual manifestations and began the administration of thyroid extract in gradually increasing doses, with considerable improvement following its use in the case of O. H., less in the case of B. H., although his epileptic seizures were greatly modified. The closest possible investigation furnishes no history of an infectious fever, erysipelas of the neck, or rheumatism (unless the pains in the lower extremities with shortness of the Achilles tendon and limitation of motion at the hip joints be rheumatic in nature) as a possible forerunner of thyroiditis.

Boston Medical and Surgical Journal

December 26

8 Reverdin and other Methods of Skin Grafting: Historical Review. A. Ehrenfried, Boston.
9 Skin Grafting Technic and Cases. F. J. Cotton and A. Ehrenfried, Boston.

10 "Rusty Nail" Tetanus, with Tetanus Bacilli in the Inguinal Glands. C. A. Porter and O. Richardson, Boston.
11 *Gastric Ulcer, Subacute Perforation in a Boy of Eight Years; Operation; Recovery. F. B. Lund, Boston.

December 30

12 The Medical Achievements of Dr. Holmes. E. O. Otis, Boston.
13 *Medical Expert Testimony. W. Schofield, Malden, Mass.
14 Possible Reform of Judicial Procedure. W. G. Thompson, Boston.
15 Improvement of the Present System of Expert Testimony. E. R. Thayer, Boston.
16 *Medical Expert Testimony. G. W. Gay, Boston.

11. **Gastric Ulcer in a Boy.**—The patient was brought up on a bottle, had the diseases of childhood in a mild form, and suffered since about a year old with occasional sick spells accompanied by vomiting. These attacks were rare, however, and he never vomited any blood. About a year ago he was ill for a few days with paroxysmal pain in the epigastrium, accompanied by slight fever. The pain was not related to time of eating. He vomited a few times, and on one occasion the vomiting was blood-streaked. A few months later a similar but more severe attack occurred, during which at one time, he vomited about a teaspoonful of bright blood, and for two days the stools were black. On admission to hospital he was evidently in his third attack. He had been ill two weeks with pain, severe and paroxysmal, referred upward and to the left from the epigastrium, with frequent vomiting. On one occasion he vomited about 2 oz. of bright blood. The pain was particularly severe late in the evening or at night. The stools were sometimes dark, sometimes normal. Some fever had accompanied the attack. His temperature was 101.5 F.; pulse was 108, with slight epigastric tenderness. There was blood in the stools. Under supervision his symptoms rapidly subsided, the tenderness soon disappeared and it was thought that he would recover under medical treatment. He was discharged in two weeks. Six weeks later he was re-admitted, having been attacked two days previously with epigastric distress and vomiting. There were small amounts of bright blood in the vomitus. The attacks of pain occurred in sharp paroxysms. His temperature was 102 F., with marked tenderness in the epigastrium, and distinct muscular spasm. It was felt that in all probability there had been a subacute perforation of the ulcer. At the operation Lund found a large indurated ulcer just to the left of the pylorus on the lesser curvature firmly adherent to the liver. The adhesions which tied it to the liver were not disturbed. A posterior-gastroenterostomy was performed with a short loop. Recovery was uneventful, save for a slight bronchitis.

13. **Medical Expert Testimony.**—Schofield says that if statutes were enacted regulating the fees and contracts of medical expert witnesses, and prohibiting the acceptance by them of any different fees, either for attendance at court or for services, and restoring the common law powers of the trial judge, conditions would be established in the courts by which the evils of medical expert testimony could be greatly mitigated, if not wholly removed. Medical societies can aid the reform by bringing forward the moral issue involved and impressing it on students and practitioners. They can establish rules of conduct to be observed by their members when called on to act as medical expert witnesses. Sir James Stephen said that if medical men laid down for themselves a positive rule that they would not give evidence unless before doing so they met in consultation the medical men to be called on the other side and exchanged their views fully, so that the medical witnesses on the one side might know what was to be said by the medical witnesses on the other, they would be able to give a full and impartial account of the case that would not provoke cross-examination. It would be very natural that parties and counsel should resist as an innovation which would lead to a disclosure of evidence to the opposing party a movement in favor of conference before trial between the experts on each side of the case. But expert witnesses are an exceptional class of witnesses, and the proposition is so manifestly fair and well-intentioned that it ought to have a trial. It would be a step toward the restoration of confidence in the sincerity of medical expert testimony, and would tend to reduce the divergence of medical expert opinions in courts to legitimate and reasonable limits.

16. **Id.**—Gay would give the court authority to charge the jury on medical expert evidence and to appoint medical experts in certain cases on his own motion, said expert to be paid by the county; and to refer all important questions relating to the mental condition of the parties at suit to a commission of alienists or experts before the trial. The bench and the bar, he says, should correct certain abuses attending the hearings of expert evidence in the courts.

New York Medical Journal

January 1

17 *Surgical Management of Complicated Harelip and Cleft Palate. J. B. Roberts, Philadelphia.
18 *Chorioiditis Dependent on Appendicitis. R. T. Morris, New York.
19 Effect of Venereal Disease on Public Health. E. L. Keyes, New York.
20 Is the Demonstration of the Gonococcus as Simple a Matter as is Commonly Supposed? E. Fuller, New York.
21 *Pseudoleucemia gastrointestinalis. H. Shoemaker, Philadelphia.
22 Indiscriminate Enucleation of the Tonsil. P. Fridenberg, New York.
23 The Professional Position of the Roentgenologist. G. H. Stover, Denver.
24 Comparison Between Clinical Infection and Experimental Inoculation in Syphilis. D. W. Montgomery, San Francisco.
25 The Use of the Electrocautery for Uterine Carcinoma. W. J. Gillette, Toledo.
26 *Atypical Exophthalmic Goiter. T. R. Pooley, New York.

17. **Harelip and Cleft Palate.**—According to Roberts, a child born with harelip and cleft palate should be treated by what might be called the composite method. Immediately after birth the mother should press the two halves of the upper jaw together firmly with her fingers two or three dozen times a day. This orthopedic procedure tends to lessen the width of the fissure. As soon after birth as possible, the soft and semicartilaginous bones of the upper jaw should be forced together by means of a Hammond clamp or by the more formal operation of Brophy, with wire tie beams and lead plates. About the same time that this replacement of the bones is attempted, the alveolus should be reconstructed in front, if there be any great deviation in the alignment. Any protrusion of the intermaxillary bone must next be corrected by a plastic or osteoplastic operation at the front part of the septum of the nose. Any gap remaining in the roof of the mouth must next be closed by a flap operation. A fissure in the upper lip must be closed by carefully applied sutures and the deformity of the nostril must be corrected. If the lower lip is conspicuously prominent a V-shaped piece must be excised and perhaps the upper lip widened by insertion of tissue from cheek, chin, or hand. These various operative steps will occupy probably a year or two, because many periods of inactivity will be demanded in order to insure safety to the child and to permit the surgeon to see the effect of the various stages in the operative work.

18. **Chorioiditis Dependent on Appendicitis.**—A clergyman was about to retire from his labors because of chorioiditis. It was anticipated that he was to become entirely blind. His physician stated that he believed the chorioiditis to be secondary to toxemia resulting from the influence of the patient's appendix. This proved to be the correct diagnosis. On examination, Morris found a typical case of fibroid degeneration of the appendix, with the type of irritation which he calls "protective appendicitis," for the reason that it seems to protect the patient against infective appendicitis. The appendix was removed through a short incision, and was found to consist of an organ in which the inner structures had been replaced by connective tissue, as is usually found in such cases. The patient began at once to recover from his intestinal indigestion, from his general nervous irritability, and from the chorioiditis. November, 1909, he considered himself perfectly well and has taken up all of his duties in life again.

21. **Gastrointestinal Pseudoleucemia.**—A composite picture of gastrointestinal pseudoleucemia, according to Shoemaker, presents the following facts: The tonsils are enlarged, and generally also the cervical lymphatics which drain these glands. The disease differs from Hodgkin's disease in the absence of any marked enlargement of the superficial lymph glands over the body. There is a hyperplasia of the lymphoid element in the spleen, the gastrointestinal tract, and the neighboring lymph glands. Herrick, 1908, reports marked enlargement of lymph glands about the pancreas. A splenic tumor, a hyperplasia of the solitary follicles, and Peyer's

patches, are invariable. The solitary follicles are pedunculated, or sessile, and often fuse together forming rugæ. This condition may be so extensive that it prevents the intestine from collapsing. These growths may be pigmented or ulcerated. Microscopically there is seen a round cell hyperplasia of the lymphoid tissue which does not invade the surrounding tissue. The bone marrow is red. In one case only were yellow spots seen. No leucocytosis exists, but a relative increase of the small lymphocytes is present. They may equal or exceed in number the polymorphonuclear cells. There is a reduction in the red blood cells, and a relative reduction of the hemoglobin. Poikilocytes are numerous and no nucleated red blood cells are seen—the author's case excepted.

The principal points of difference in the case reported by Shoemaker lie in the moderate involvement of the lymphoid elements in the gastrointestinal tract, and in the age of the patient. He says that no doubt had this process been a more chronic one, and had the patient lived to the average age (he died at the age of 28) the involvement of the stomach and intestines would at least have been equal to those cases reported by other observers.

26. **Atypical Exophthalmic Goiter.**—In Pooley's case there was absence of any distinct enlargement of the thyroid, a very unusual swelling and protrusion of the conjunctiva, and severe nervous and mental symptoms.

Lancet-Clinic, Cincinnati

December 25

27 Problem of a Federal Department of Health L. H. Montgomery, Chicago.
28 Routine Induction of Labor at Term. M. A. Tate, Cincinnati.

Journal of the Medical Society of New Jersey, Orange

December

29 *Sterilization of Confirmed Criminals, Idiots, Imbeciles, and other Defectives by Vasectomy. W. J. Chandler, South Orange.
30 *Pathognomonic Signs as Relating to Appendix Localization. A. J. Walscheid, Union.
31 Laboratory Diagnosis of Typhoid and the Typhoid Carrier. D. S. D. Jessup, New York.
32 Typhoid in Infancy and Childhood. LeG. Kerr, Brooklyn.
33 Treatment of Typhoid. W. Coleman, New York.
34 Surgical Aspect of Typhoid. J. Douglas, New York.
35 Prostatectomy. F. M. Donohue, New Brunswick.

29, 30. Abstracted in THE JOURNAL, Aug. 28, 1909, pp. 736, 737.

Journal of the Michigan State Medical Association, Detroit

December

36 *Mind Cures in General and the Emmanuel Movement in Particular. A. Church, Chicago.
37 *The Physician and the Campaign against Tuberculosis. A. S. Warthin, Ann Arbor.
38 *Acute Postoperative Dilatation of the Stomach. A. W. Blain, Detroit.
39 Ephraim McDowell. F. C. Warnshuis, Grand Rapids.
40 Pathologic Examinations in the Diagnosis of Malignancy. Tabulation of 2,400 Reports. C. S. Oakman and T. Walker, Detroit.
41 Saline Container and Dropper. F. J. W. Maguire, Detroit.

36, 37, 38. Abstracted in THE JOURNAL, Oct. 9, 1909, pp. 1220, 1221, 1222.

Annals of Surgery, Philadelphia

December (Jubilee Number)

42 *Intrahuman Bone Grafting and Reimplantation of Bone. Sir W. Macewen, Glasgow, Scotland.
43 Derangements of the Knee. R. Jones, Liverpool, England.
44 *Partial Hypophysectomy for Acromegaly. H. Cushing, Baltimore.
45 *Ligation of the Thyroid Vessels in Certain Cases of Hyperthyroidism. C. H. Mayo, Rochester, Minn.
46 Significance of Thyroidism and its Relation to Goiter. J. Rogers, New York.
47 Treatment of Dry Arthritis with Injection of Petrolatum. T. Rovsing, Copenhagen, Denmark.
48 *Lymphatics of the Colon. J. K. Jamieson and J. F. Dobson, Leeds, England.
49 *High Amputation of the Rectum. H. Hartmann, Paris, France.
50 *Principles of Radical Treatment for Proctosigmoiditis. R. Bastianelli, Rome, Italy.
51 *Operative Treatment of Fractures. W. A. Lane, London, England.
52 *A Clamp for Fixation of Ununited Fractures. R. Morison, Newcastle-on-Tyne, England.
53 *[illegible] sis [illegible] the [illegible] udder [illegible]
54 *[illegible] G. [illegible] gland.
55 *Partial Resection of the Bla[illegible] by the Transperitoneal Route. A[illegible]
56 *Cancer of the Prostate. H. H. Young, Baltimore.
57 *Acute Hemorrhagic Pancreatitis. J. R. Judd, Honolulu, Hawaii.
58 Pancreato-Enterostomy and Pancreatectomy. R. C. Coffey, Portland, Ore.
59 *A Disease of the Gall-Bladder Requiring Cholecystectomy. B. G. A. Moynihan, Leeds, England.
60 Transduodenal Choledochotomy. N. J. Maclean, Winnipeg, Canada.
61 Ileus Due to Meckel's Diverticulum. D. N. Eisendrath, Chicago.
62 Diffuse Peritonitis. J. B. Deaver, Philadelphia.
63 Appendicostomy in Conditions of Acute Peritonitis. E. W. H. Groves, Bristol, England.
64 The Appendix Vermiformis. C. B. Keetley, London, England.

42. **Intrahuman Bone Grafting.**—A case is reported by Macewen in which the greater part of the shaft of the humerus was restored by intrahuman transplantation 30 years ago. Three other cases are mentioned—one illustrating human reimplantation of the flat bones of the skull and two of restoration by transplantation of human jaw bones. In both of these latter the operation was performed for the removal of marked deformity as well as to restore the function of the mandible. A fourth case is referred to as a note.

These cases are quoted as examples of many others in which bone grafting and transplantation of bone has been successfully performed by Macewen. It is to be noted that the periosteum plays no part in the bone reproduction after transplantation, and in the majority of the cases referred to the periosteum was not transplanted along with the bone. The patient in point, aged 3 years, was (July 17, 1878) in an emaciated and exhausted condition from suppuration due to necrosis of the right humerus, evidently from osteomyelitis. The shaft of the humerus was found to be totally necrosed and already separated from its head near its epiphyseal junction. At the condylar epiphysis crepitation was likewise elicited. The bone was dark colored and fetid. About nine weeks after the onset of the disease, the exposed loose bone was divided near its center into two parts, which were consecutively withdrawn. The two portions removed comprised the whole humeral diaphysis. The periosteal tube which remained was covered with a thick layer of granulation tissue which was soft throughout, except at the proximal extremity, where the finger detected rough, osseous plaques of bone. This tunnel was stuffed with carbolized lint and the arm was fixed on a splint. The tunnel left by the withdrawal of the bone gradually coalesced from the epiphyses toward the superficial openings without the formation of new bone, except for a short distance from the head of the humerus, where about an inch and a half of shaft had formed three months after removal of the dead shaft. Fifteen months subsequently, two wedges of bone were removed from the tibia of a patient 6 years old, affected with anterior curves. The bases of these osseous wedges consisted of the anterior portion of the tibia, along with its periosteum, the wedges gradually tapering toward the posterior portion of the tibiæ. After removal, they were cut into minute fragments with the chisel, irrespective of the periosteum. The bulk of the fragments had no periosteum adhering to them, they having been taken from the interior of the bone. They were then deposited into the muscular sulcus in the boy's arm and the tissues drawn over them and carefully adjusted. Two other wedges of bone of larger size than the first were similarly dealt with and inserted two months subsequently to the first graft, and a third couple were placed in a position five months after the first. These filled the gap in the arm to the extent of four and a quarter inches; the humerus then measured 6 inches in length. Soon the utility of the arm was greatly restored. Seven years after the dismissal from the hospital the humeral shaft was found to have increased in length by one and three-quarters inches, being now seven and three-quarters inches, and it had increased in circumference to a marked extent and had assumed a somewhat irregular shape. The length of the sound arm had, however, considerably outstripped the length of the transplanted humerus. The patient could use his grafted arm for a great many purposes—taking food, adjusting his clothes, and in many games.

44. **Hypophysectomy for Acromegaly.**—The patient, male, aged 38 years, about 8 years ago, began to suffer from periodic headaches, which have increased in frequency and

severity so that now the pain has become more or less constant, with exacerbations. It is referred to the depth of the head, and often passes to the back of the neck, where there is considerable stiffness and an uncomfortable drawing sensation. Soon after the onset of the headaches the man began to be troubled with photophobia, particularly during the attacks of pain. Otherwise there has been no visual disturbance, no impairment in hearing, no olfactory or gustatory disturbance, no vomiting, no nausea. Gradually there developed all the signs and symptoms of acromegaly. The operation done March 25, 1909, consisted of a preliminary tracheotomy; partial removal of the hypophysis, using the transphenoidal route and osteoplastic resection of the anterior wall of the frontal sinuses. The tracheal wound was closed without drain. Ether anesthesia was used.

Though anxious to return home and quite able to leave the hospital within a week or ten days after the operation, he was persuaded to remain for 17 days. During this interval, he called attention to the fact that his hands seemed much less stiff than formerly; indeed, that he had not seen wrinkling of the skin such as was present for a number of years. Measurements of the fingers showed that they had diminished from 1 to 1.5 mm. in their circumferential measurements. His photophobia had almost entirely disappeared. The one objectional feature was the inevitable complete loss of his olfactory sense. There had been no headache since the operation, very slight photophobia and only an occasional slight puffiness of the hands—much less than formerly. The speech still remained somewhat thick, and the patient had no subjective consciousness of any diminution in the size of the tongue comparable to that which had occurred in the soft parts of the hands. There had been no nasal discharge. He was troubled only by the loss of the sense of smell, which had cut him off from the enjoyment of certain flavors. He had given up smoking, and now chews tobacco, and no longer cares for coffee. He has gained 10 pounds in weight.

45. **Vessel Ligation for Hyperthyroidism.**—Five hundred and eighty patients suffering from hyperthyroidism or exophthalmic goiter have been operated on at St. Mary's hospital. Of these operations, 225 were ligations of the superior thyroid arteries and veins. A number of these ligations have been made too recently to base observations on except as to the immediate risk of operation, which is about 2 per cent. in deaths occurring within a few days. Ten of these patients were operated on too late and did not improve but continued in their downward progress, dying in from eight to ten months later of their disease. In these deaths is included a case of pernicious anemia. The Mayos now have full records of 138 cases which were ligated sufficiently long ago to make the report of value.

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In cases of ligation without thyroidectomy the results were as follows: Slight improvement, 9; great improvement, 44; very marked improvement, 11; absolutely well, 4; cases of questionable exophthalmic goiter, no improvement, 9.

48. **Lymphatics of the Colon.**—Jamieson and Dobson review the previous publications on this subject and again emphasize the necessity of complete removal of lymphatic areas when operating for carcinoma of the colon.

49. **High Amputation of Rectum.**—Although the results of abdominal and perineal amputations of the terminal parts of the intestine have not been very encouraging, Hartmann believes that with the actual improvement of the technic they will become better, and that the abdominoperineal path is to be the path of the future. Hartmann has done this abdominoperineal operation four times—three times bringing down the pelvic colon through the perineum and once the upper end in an iliac incision and total extirpation of the lower end, with three cures and one death by hemorrhage, the results of an operative fault.

50. **Proctosigmoiditis.**—In cases of stricturing proctitis or proctosigmoiditis the treatment recommended by Bastianelli is as follows: 1. Cecal anus and laparotomic exploration of the bowels. 2. Perineal or combined removal of the diseased section, in one or two stages, with mobilization of sigmoid and colon, if necessary, and preservation of sphincter. 3. Closure of cecal anus. 4. Plastic operation, if necessary. Bastianelli emphasizes the importance of resorting more frequently to the abdominal route in the treatment of strictures of the rectum for the purpose of preliminary exploration; and the importance of exact ligating and cutting the arterial supply from the abdomen, even in cases of perineal operation to prevent any damage to the circulation.

51. Published in the *Lancet*, June 12, 1909.

52. **Fixation of Ununited Fractures.**—The clamp described by Morison is intended to hold together fractured bones till union has occurred, when the clamp is removed.

53. **Musculospiral Paralysis.**—Scudder and Paul report 11 cases in which the end-results are known. In 8 cases there is no wrist drop at present; 3 cases showed no improvement in the nerve function following operative interference. Of these 3 cases, 1 patient died 3 years following suture of the nerve, showing no improvement in the nerve function; another has had 3 unsuccessful operations for ununited fracture of the humerus at intervals of from 6 to 8 years; the third patient at the first operation had the nerve freed, resected and sutured, and at the second operation the bone shortened by resection, the nerve, found bulbous, resected and sutured. After 16 years there is no return of function in the nerve. Eight of these patients were badly injured. The trauma was very severe; the arm was caught in the shafting or the belt of an engine, or had received a gunshot wound, or was crushed by machinery. Nearly all the patients were operated on 3 or 4 months following the accident. The longest interval between accident and operation was 3 years. This patient recovered functional usefulness and the musculospiral supply. Improvement in these patients was first noted 6 months to one year following the operation.

54. **Partial Nephrectomy.**—In the case reported by Barling, the left kidney was found to have two ureters. Owing to symptoms present it was necessary to do a kidney operation. The upper portion of the left kidney, exactly two-thirds of it, was unusually firm in consistence but otherwise apparently quite healthy; the lower third was in a condition of complete sacculation and presented a yellowish-white color in contrast to the brownish red of the upper healthy portion. The pelvis of this lower third was much dilated, as was the ureter also. No stone could be detected in the pelvis or ureter. The latter was therefore opened and a bougie passed easily into the bladder, showing the absence of stone or stricture. After considerable search, the second ureter was found clinging closely by dense adhesions to the diseased ureter and dilated pelvis. Much trouble was required to separate the two. The dilated ureter was then clamped and divided. A clamp was next placed on the vessels of the kidney and the lower third of the kidney excised. Lest any renal tissue should be left on the truncated lower end of the upper healthy portion, that end was carefully curetted with a Volkmann spoon, and the end was whipped over with a continuous catgut suture. The clamp was then removed from the vessels; very little bleeding occurred. The remaining portion of kidney was returned into the loin and the wound closed, except for a drainage opening. Shock after the operation was extremely marked, much more so than in an ordinary case of nephrectomy for pyonephrosis. The patient's recovery was interrupted by a slight febrile disturbance on the ninth day, two days after the drainage tube was taken out, and was probably due to some little leakage from the cutting out of continuous catgut suture. There was at this time a little hematuria. The patient is now quite well in all respects.

55. **Transperitoneal Resection of Bladder.**—Primrose reports a case of tumor of the bladder in which he employed successfully the method first advocated by C. H. Mayo—transvesical

resection of a portion of the bladder wall. The left ureter in this case passed through the tumor mass. It was severed one inch from the bladder wall and sutured into the wound. Its patency was preserved. The patient made an excellent recovery.

56. **Cancer of the Prostate.**—Young's paper consists of a comprehensive and detailed clinical, pathologic, and postoperative analysis of 111 cases in which he operated. He says that a cure can be expected only by the routine removal of the seminal vesicles, vasa deferentia and anterior two-thirds of the vesical trigone with the entire prostate. The operation is not extremely difficult or dangerous, and already at least one cure has probably been obtained (now almost five years since operation). He says that when the disease is advanced and urination very difficult and frequent a catheter life should be adopted. When, however, catheterization is difficult or painful, a palliative operation should be done, in some cases suprapubic cystostomy, but lasting relief of urinary obstruction and vesical pain can be secured by careful conservative perineal prostatectomy.

57. **Acute Hemorrhagic Pancreatitis.**—Judd reports the case of one patient subjected to operation and who recovered. An opening was made into the head of the pancreas with a blunt instrument and a cigarette drain inserted leading out above the stomach through the gastro-hepatic omentum. The gall-bladder and ducts showed no stones and were apparently in normal condition. The wound was then closed, except for the space occupied by the drain, and another drain inserted through the suprapubic stab wound. The patient was put to bed with the head of the bed raised and was given normal saline solution by rectum. Steady improvement followed the operation. There was considerable drainage of a thin, bloody fluid for the first 24 hours, which rapidly diminished, and by the third day drainage had practically ceased. The temperature reached 101.4 F. on the second day, and was elevated 1 or 2 degrees for 12 days, after which time it remained normal. The pain continued, although of less intensity, for 3 days and required several hypodermics of morphin. The bowels moved voluntarily on the fourth day, followed by a profuse diarrhea for several days. Convalescence was then uneventful and the patient returned home during the fourth week. Since the operation, nine months ago, she has enjoyed good health, and at present is in splendid condition.

59. **Cholecystectomy.**—Moynihan points out that there is a condition of the gall-bladder in which fine grains of calculous material are embedded in the mucosa; the cystic duct is not affected. The wall of the gall-bladder may appear normal. It may retain the blue color of health and the walls are thin and supple. It may be white and thickened, slightly or grossly, in part or in whole. No stones are free in the gall-bladder though particles of grit may be found in the bile therein. Chronic pancreatitis may be present in the more advanced cases. Inspection of the mucosa of the gall-bladder is necessary to reveal the presence of this condition in its early stages; it cannot otherwise be recognized. Removal of the gall-bladder is necessary; drainage of the common duct may be desirable in cases where jaundice has been present. Three illustrative cases are cited.

West Virginia Medical Journal, Wheeling

December

65 *The New Neurology. C. A. Wingerter, Wheeling.
66 Artificial Hyperemia as a Therapeutic Measure. J. H. Anderson, Marytown.
67 Atrophic Rhinitis. G. A. Aschman, Wheeling.
68 Diagnosis and Treatment of Perforation in Typhoid. C. M. Scott, Bluefield.
69 Plastic Operation for Relief of Anteflexion of the Uterus. H. G. Nicholson, Charleston.

65. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1587.

Journal of Advanced Therapeutics, New York

December

70 Radium Therapy in Inoperable Tumors. W. H. Dieffenbach, New York.
71 Standardization of High Potential Electric Currents (continued). E. C. Titus, New York.
72 *Treatment of Pathologic Menopause. H. F. Pitcher, Haverhill, Mass.

72. Abstracted in THE JOURNAL, Dec. 11, 1909, p. 1999.

Woman's Medical Journal, Cincinnati

December

73 *Habits of Posture a Cause of Deformity and Displacement of the Uterus. E. M. Mosher, Brooklyn.
74 Morphology and Physiology of Areas of Langerhans in Some Vertebrates (continued). L. M. Dewitt, Ann Arbor.

73. **Posture and Displacement of the Uterus.**—Mosher examined *per vaginam* and by rectum a large number of women and girls who have acquired a lateral obliquity of the pelvis from habits of posture, and in almost no instances has she found the uterus in the axis of the pelvis. Twenty-two had a right lateral obliquity (right hip elevated), while the remainder had acquired the opposite tilt. In every one of these cases the uterus approached the elevated hip, especially in the upright position of the trunk. Most of these women had dysmenorrhea and leucorrhea and in some the condition was accompanied by more serious pelvic lesions. Mosher says that a combination of the two forms of obliquity in the habitual posture of the pelvis is common, especially when the habit has been acquired in standing, and the influence of both can be traced in the shape and position of the uterus.

The author urges that mothers in every school district should collectively be instructed in reference to the normal position of the body in standing and sitting, and of the dangers which menace their daughters if not properly trained. Teachers everywhere should be similarly instructed and urged to enforce the adoption of right habits of posture in their pupils. Physical exercise not only in the gymnasium but in the school-room, between classes, should be given to strengthen the muscles which hold the pelvis in normal obliquity and which correct the tendency to lateral obliquity. Physicians and all intelligent people should exert an influence against the use of articles of wearing apparel by girls and women which engender bad habits of posture, the most important of these being high heels, tight corsets, and those which crowd the abdomen back and downward, stocking supporters fastened to the front of the corset, and tight waist-bands.

Western Medical Review, Omaha

December

75 The Medicolegal Aspects of the Roentgen Rays from the Standpoint of the Surgeon. R. D. Mason, Omaha.
76 Nystagmus. L. B. Bushman, Omaha.
77 Typhoid Fever. J. A. Andrews, Holdredge, Neb.
78 The Typhoid Problem. R. B. McGrath, Grand Island, Neb.
79 Meckel's Diverticulum as a Cause of Intestinal Obstruction. S. R. Hopkins, Omaha.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

December

80 *Distribution of Encephalic Hemorrhages. S. D. W. Ludlum, Philadelphia.
81 *Unusual Type of Syringomyelia. W. M. Leszynsky, New York.
82 *Gunshot Wound of the Brain, without Focal Symptoms. W. M. Leszynsky, New York.
83 *Diet in Epilepsy. A. J. Rosanoff, Kings Park, N. Y.
84 Cause of Contractures and Spasticity in Cases Showing no Demonstrable Lesion of the Pyramidal Tracts. J. H. W. Rhein, Philadelphia.

80. **Distribution of Encephalic Hemorrhages.**—In the ninety-three patients examined by Ludlum, it would seem that vascular lesions occur about as frequently in the anterior chorioid, the posterior communicating, and the posterior cerebral arteries, as in the striate group of vessels. They all are, he says, important factors both in softenings, cyst formations and hemorrhages in the region of the basal ganglia.

81. **Syringomyelia.**—The unilaterality of the symptoms, their almost exclusive sensory character, their accurate correspondence with accepted views of the segmental sensory distribution, the characteristic dissociation of sensibility, and the entire absence of motor symptoms leads Leszynsky to present his patient as an atypical case of syringomyelia in its early stage, or a gliosis limited to the sensory tracts in the central portion of the cord. A tumor of the cord could be excluded.

82. **Gunshot Wound of Brain.**—The interesting feature in this case is that the bullet took its course almost directly through the median line, traversing the anteroposterior diameter of the brain, and therefore doing no damage to any area

severity so that now the pain has become more or less constant, with exacerbations. It is referred to the depth of the head, and often passes to the back of the neck, where there is considerable stiffness and an uncomfortable drawing sensation. Soon after the onset of the headaches the man began to be troubled with photophobia, particularly during the attacks of pain. Otherwise there has been no visual disturbance, no impairment in hearing, no olfactory or gustatory disturbance, no vomiting, no nausea. Gradually there developed all the signs and symptoms of acromegaly. The operation done March 25, 1909, consisted of a preliminary tracheotomy; partial removal of the hypophysis, using the transphenoidal route and osteoplastic resection of the anterior wall of the frontal sinuses. The tracheal wound was closed without drain. Ether anesthesia was used.

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52. **Fixation of Ununited Fractures.**—The clamp described by Morison is intended to hold together fractured bones till union has occurred, when the clamp is removed.

53. **Musculospiral Paralysis.**—*Scudder and Paul report 11* cases in which the end-results are known. In 8 cases there is no wrist drop at present; 3 cases showed no improvement in the nerve function following operative interference. Of these 3 cases, 1 patient died 3 years following suture of the nerve, showing no improvement in the nerve function; another has had 3 unsuccessful operations for ununited fracture of the humerus at intervals of from 6 to 8 years; the third patient at the first operation had the nerve freed, resected and sutured, and at the second operation the bone shortened by resection, the nerve, found bulbous, resected and sutured. After 16 years there is no return of function in the nerve. Eight of these patients were badly injured. The trauma was very severe; the arm was caught in the shafting or the belt of an engine, or had received a gunshot wound, or was crushed by machinery. Nearly all the patients were operated on 3 or 4 months following the accident. The longest interval between accident and operation was 3 years. This patient recovered functional usefulness and the musculospiral supply. Improvement in these patients was first noted *6 months to one year* following the operation.

54. **Partial Nephrectomy.**—In the case reported by Barling, the left kidney was found to have two ureters. Owing to symptoms present it was necessary to do a kidney operation. The upper portion of the left kidney, exactly two-thirds of it, was unusually firm in consistence but otherwise apparently quite healthy; the lower third was in a condition of complete sacculation and presented a yellowish-white color in contrast to the brownish red of the upper healthy portion. The pelvis of this lower third was much dilated, as was the ureter als
No stone could be detected in the pelvis or ureter. The
was therefore opened and a bougie passed easily
bladder, showing the absence of stone or strict
considerable search, the second ureter was
closely by dense adhesions to the diseased
pelvis. Much trouble was required to
dilated ureter was then clamped and
next placed on the vessels of the
of the kidney excised. Lest any
on the truncated lower end of
end was carefully curetted
end was whipped over wi
clamp was then remov
occurred. The rem
the loin and
Shock after
so than in an
The patient's
disturbance on
tube was taken
leakage from the
There was at this
now quite well in all

55. **Transperitoneal**
a case of tumor of the
fully the method first ad

retention after twenty-four hours. The experiments also showed that the principal amount of nitrogen was eliminated very shortly after its ingestion. The experiments seem to show that the chemical digestion of proteins by the stomach is quite subsidiary and that its principal office is to retain the nitrogenous food in such a way that opportunity may be given for the organism to store up and retain the ingested protein. The authors suggest that this is accomplished to a certain extent by the absorption from the stomach of incompletely digested proteins.

Denver Medical Times and Utah Medical Journal

December

131 Hereditary Ocular Diseases. G. F. Libby, Denver.
132 Physicians and the Public Health. W. H. Sharpley, Denver.
133 Pityriasis Rubra Pilaris. A. J. Markley, Denver.
134 The Treatment of Wounds. C. E. Tennant, Denver.
135 Intrapartum Hemorrhage Due to Premature Separation of the Placenta. A. M. Ditson, Denver.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

December 18

1 *The Brain Structures Concerned in Vision. F. R. Cross.
2 Special Sense Discharges from Organic Disease. Sir W. R. Gowers.
3 *Latent Chorea: Contribution to the Study of Sydenham's Chorea. R. Miller.
4 X-Ray Ulcers Cured by Hilton's Method. A. F. Savill.
5 Action of Cryogenine on Phthisical Temperature. J. E. Gordon.
6 Case of Peripheral Neuritis (Alcoholic). J. Wyllie.
7 *Case of Pneumonia Migrans. H. B. Roderick.
8 Syphilis of Pancreas with a Pancreatic Calculus in the Duct. J. G. Taylor.
9 Status Lymphaticus with Sudden Death. R. W. S. Walker.

1. **The Brain Structures Concerned in Vision.**—Cross claims that the visuosensory area along the calcarine fissure is the primary station in each hemisphere for the reception of impressions coming from the retina through the geniculate bodies; around it is the visuopsychic area to which these impressions are transferred; it occupies the rest of the surface of the occipital lobe, its functions being to elaborate and to interpret. If part of the visuopsychic area is primarily diseased, there is likely to be a partial hemianopsia complicated by slight peculiarities of vision more or less indefinite, some difficulty in memory of words, some form of letter, word, or mind blindness. When the fibers that go to the temporal region are affected, there may be word deafness or loss of power in the musical faculty, to recall names or to read aloud. The psychic cells are associated with the psychomotor, where the impressions or information gained by sight are transferred for purpose of thought, speech, or action, and these with the emissive motor by which speech and writing are affected. The centers for these latter acts lie adjoining those for the simple movement of the lips and hand. The various parts of the visual cortex are connected by short association fibers almost infinite in their distributions.

3. **Latent Chorea.**—Miller holds that (rheumatic) chorea declares itself first by symptoms significant of general nervous instability. He urges that in dealing with children suffering from nervous disorders of many kinds special care should be taken to exclude the possibility of their having originated from a slight rheumatic infection. The well-known association between rheumatism and nervous instability is not to be explained by considering that the infection is specially prone to attack neurotic children, but by regarding the nervousness as in most cases the outcome of an infection already present (latent chorea). The mental depression and headache in rheumatic children are usually to be attributed to the disease and not to its treatment by salicylates. The recognition of latent chorea in children suffering from obvious acute rheumatism affords strong evidence that chorea is a rheumatic condition.

7. **Pneumonia Migrans.**—The striking features of Roderick's case were: (1) The cerebral symptoms, which persisted throughout the illness, varying from a semi-comatose state to a violent delirium; (2) the migratory nature of the pneumonia and the small area of lung involved in each attack; (3) the slight disturbance of respiration, which only once reached 40 to the minute, being usually about 28; and (4) the rapid recovery after a small dose of antipneumococcic vaccine (0.5 c.c. containing 2,500,000 dead pneumococci) which, he thinks, it is reasonable to suppose, was instrumental in bringing about the favorable result.

British Medical Journal, London

December 18

10 *Brain Structures Concerned in Vision and the Visual Field. F. R. Cross.
11 Preparations of Lactic Acid Bacilli and the Production of Soured Milk. E. Quant.
12 *Leucoplakic Vulvitis and its Relation to Kraurosis Vulvæ and Carcinoma Vulvæ. C. Berkeley and V. Bonney.
13 *A New Color-Perception Spectrometer. F. W. Edridge-Green.
14 *Treatment of Post-Operative Shock by Pituitary Extract. G. G. Wray.
15 Inversion of Appendix and Cecum. W. J. Greer.
16 Acute Mastoid Suppuration and Suppuration in the Neck. J. Scott.
17 *Is Radium a Cure for Cancer? L. Wickham.

10. See Abstract No. 1.

12. **Leucoplakic Vulvitis.**—The authors have tried a number of remedies for the pruritus in leucoplakic vulvitis, and have found that most of them have failed to give relief. In view of their pathologic findings they advise that the affected area be excised in all cases in which local treatment fails, and since a permanent change of character takes place in all the epithelial cells over the affected area, the excision should be a wide one lest the disease recur again in the scar, which has happened to them in two cases.

13. **New Color-Perception Spectrometer.**—The instrument described by Edridge-Green is a spectrometer so arranged as to make it possible to expose to view in the eyepiece the portion of a spectrum between any two desired wave-lengths. It consists of the usual parts of a prism spectroscope—that is, a collimator with adjustable slit, prism, and telescope with eyepiece.

14. **Post-Operative Shock Prevented by Pituitary Extract.**—In three cases Wray injected 1 c.c. of a 20 per cent. solution of the posterior lobe of the pituitary body intramuscularly into the patient's arm before the patient had fully recovered from the anesthetic. The effect was almost immediate, and the almost imperceptible pulse soon became large and bounding. This effect lasted from 12 to 16 hours, and gradually passed off. Not only did the pulse become larger in expansion, but it was also slowed, and whereas it had been irregular it become regular. This effect seems due not only to the action of the drug on the blood vessels, but also on the heart. The injection was given in conjunction with normal saline by rectum.

17. **Radium a Cure for Cancer.**—From a study of 600 cases of tumors comprising specimens of each variety, before, during, and after the treatment, Wickham concludes that the malignant evolution of these tumors may not only be arrested for months by radium treatment, but that occasionally, these tumors have entirely disappeared, giving the impression of real cure, the rays having on cancer cells a somewhat selective action. He says that radium cannot at present have other pretensions than to act on lesions which are localized and sufficiently accessible, or rendered accessible. In cases with generalization the resources of radium are limited to the reduction in size of the principal tumors, to the arrest of hemorrhage and secretion, and to the diminution of pain. If the cancer is localized and accessible, but inoperable, radium, with some rare but very remarkable exceptions, can only diminish or stop the hemorrhages and secretions, and occasionally render the tumor operable; but, in spite of these great advantages, which result in a prolongation of life, the patient in the end dies of the cancer. The influence of radium diminishes as the tumor becomes less and less accessible. Certain tissues are infinitely less favorably acted on by radium than others, for example, the mucous membranes, especially of the buccal cavity (tongue, tonsils, pharynx, etc.), and in these cases must be added the material difficulty of reaching the region conveniently, and applying the heavy screen-filters and leaving them in position for a sufficient length of time.

Lastly, if the cancer is very extensive, a radium-therapeutist has great difficulty in obtaining the stock of radium necessary to act sufficiently in every direction, for the number of doses needed in a number of cases is very high.

Medical Press and Circular, London

December 1

18 Appendicitis when the Appendix is a Pelvic Organ. J. Bland-Sutton.
19 An Apparatus for the Administration of Ether by the Purely Open Method. R. H. Hodgson.
20 Tubercle of the Lachrymal Sac. S. Stephenson.
21 Hypertrophic Cirrhosis and Alcoholic Paralysis. H. C. Drury and A. C. O'Sullivan.

December 8

22 Symptoms of Intestinal Stenosis. A. Mathieu.
23 The Opsonic Method. H. W. G. MacLeod.
24 Adhesions of the Diaphragm. L. Bassenge.
25 The Peritoneum and Peritonitis. E. R. Carling.

Clinical Journal, London

December 1

26 Mental Hygiene. S. Warner.
27 Diagnosis of Acute Abdominal Disease. H. B. Shaw.
28 Meningitis Secondary to Sphenoidal Sinus Disease. E. W. Roughton.

December 8

29 Mediastinal Tumor. W. C. Bosanquet.
30 Systematic Examination of the Eyes of School Children. N. B. Harman.

December 15

31 Diphtheria. F. M. Sandwith.

Glasgow Medical Journal

December

32 An Ophthalmic Retrospect. F. Fergus.
33 Reflexes in Cardiac Disease, Illustrated by a Case of Paroxysmal Tachycardia in which an Unusual Reflex Occurred. J. S. McKendrick.
34 The "Bruit de Roger." J. Cowan and L. Storey.
35 *Subcutaneous Treatment of Hernia in Children. A. G. Faulds.

35. Treatment of Hernia in Children.—In cases in which a clearly defined feeling of the various parts is to be had, Faulds considers it possible to cure the hernia by following this procedure. The child is prepared in the usual way for an anesthetic. It is placed on its back on the operating table, and its skin is thoroughly sterilized as for the ordinary operation. The operator having reduced the hernia, introduces his left forefinger into the inguinal canal by invaginating a small part of the scrotum, and feels both pillars of the ring. By doing this, he can easily feel the length of the opening, and determine the number of stitches necessary for its occlusion; seldom more than two, and sometimes only one stitch is required. He then takes a strong curved needle armed with a stout silk thread, pierces the skin about the top of the opening, and feels with his forefinger in the inguinal canal the point of the needle as it comes through the pillar of the ring. He thus has the hernia reduced and the sac behind his finger, which is in the canal, with the spermatic cord also behind. He then guides the point of the needle to the opposite pillar, and, taking a good bite of the other pillar, brings the point of the needle out through the skin. He again introduces the needle into the point of exit and brings it down on the long axis of the canal in the subcutaneous fat. He next pierces the pillar of the canal, and guides the needle again across to the opposite pillar, taking a good bite of it, then, traveling again in the subcutaneous tissues, brings the point of the needle out at its original entrance. He thus has the opening of the canal, as it were, in pursed strings, and, pulling the whole together, closes the ring, leaving sufficient room for the spermatic cord. By this procedure the skin and subcutaneous tissues are puckered together, but by catching the skin with a pair of dissecting forceps, and with a little manipulation, the skin and subcutaneous fat can be freed, and the ligature can be tied home on the pillars of the ring. A reef-knot is then tied as tightly as possible, and by lifting up the skin at the point of entrance of the knot with a pair of forceps the ligature is submerged, and thus no trace of operation in a few days can be found.

The canal is thus closed. The two surfaces of the sac have been brought together, room is left for the spermatic cord, and, as the child is kept at rest in the after-treatment, adhesions take place which are strengthened by the growth of the child, and the cure of the hernia is thus effected.

Journal of Hygiene, London

November

36 Investigations on the Toxicology of Tin, with Special Reference to the Metallic Contamination of Canned Foods. S. B. Schryver.
37 Progress of Ankylostomiasis in Cornwall. A. E. Boycott and J. S. Haldane.
38 *Nature of the Cellular Elements Present in Milk. R. T. Hewlett, S. Villar and C. Revis.
39 British Industrial Anthrax. C. H. W. Page.
40 On Heterologous Agglutinins, Particularly those Present in the Blood Serum of Cerebrospinal and Typhus Fever Cases. W. J. Wilson.
41 *Comparison Between the Germicidal Power of a Disinfectant in Solution and in the Emulsified State. R. E. Massey.

38. Cellular Elements in Milk.—The authors briefly sum up those facts which support the view that the cells found in milk are for the most part not leucocytes, as follows:

1. The cells present in milk (the so-called leucocytes) are very diverse in nature, and when critically examined, the majority distinctly differ from leucocytes.
2. However fresh the milk may be, the vast majority of the cells in it never stain like active leucocytes with ordinary blood stains.
3. Though many multinucleated cells are present, the majority of these are distinctly different from polymorphonuclear leucocytes.
4. The cells present in milk, however fresh, are scarcely ever ameboid.
5. Ingestion of bacteria by the cells present (phagocytosis) is practically absent.
6. In milk obtained from perfectly healthy cows these cells may occur in vast numbers, and since the mammary gland in structure resembles other glands, it is against analogy that vast numbers of leucocytes should occur in its secretion.
7. The cause of the presence of a considerable number of cellular elements at times when there is no obvious reason, such as in quarters of the udder which have a previous history of mastitis, etc., but have recovered, is easily explained if these cells are tissue cells and not leucocytes.

41. Germicidal Power of Disinfectants in Emulsified State.—Experiments made by Massey showed that the germicidal power of emulsified disinfectants is greater than can be accounted for by the activity of the active constituent. A weak emulsion of tragacanth, when kept between 20 and 40 C. was found to delay solution of phenol for about 15 minutes, and, in the case of the difficultly soluble cresols, the particles could be detected after three hours. Although the temperature and strength of the disinfectant were varied, the emulsion was slightly stronger in each case.

Australasian Medical Gazette, Sydney

November

42 History of the Sydney Hospital. T. Fiaschi.
43 Schlösser's Method of Deep Injections in Grave Trigeminal Neuralgia. R. S. Skirving.
44 Aortic Aneurism. J. C. Verco.
45 Artificial Feeding of Infants. A. G. Salter.
46 Treatment of Infantile Paralysis. R. B. Wade.
47 Surgical Technic in Intussusception Cases. E. H. Binney.
48 Calcium and Eclampsia. A. C. F. Halford.
49 Cancer of the Cecum, Complicating Myoma. R. Worrall.
50 Prostatectomy. R. S. Bowker.
51 Furunculosis Treated by Vaccine. J. J. Holland.
52 Vitiligo. S. N. Alti.

Journal of Laryngology, Rhinology and Otology, London

December

53 Uniform Acoumetric Formula Accepted by the Eighth Otological Congress at Budapest. J. Möller.
54 *Clinical Value of the Labyrinthine Nystagmus Tests (Analysis of Forty-two Cases). D. McKenzie.

54. Labyrinthine Nystagmus Tests.—McKenzie summarizes the results of his examinations as follows:

1. In otosclerosis the activity of the vestibular sense bore no relationship to the severity of the deafness.
2. In noise-deafness, concussion-deafness and deafness from meningitis the vestibular reactions were impaired.
3. In syphilis of the labyrinth the vestibular organ was not invariably affected in proportion to the cochlear.
4. In hysterical deafness the vestibular sense was impaired in proportion to the severity of the deafness.
5. In neurasthenic deafness the vestibular system was hypersensitive.
6. In perceptive deafness of indeterminate causation no conclusions were arrived at.
7. In chronic uncomplicated suppuration of the middle ear and in acute mastoiditis, the vestibular reactions were normal or slightly exaggerated.
8. In circumscribed labyrinthitis the vestibular sense as tested by measuring the caloric induction-period was impaired; and the impairment was increased after cure by the simple radical mastoid.
9. A case of labyrinthitis was found with spontaneous nystagmus to the opposite side, and with normal vestibular caloric reactions.
10. In temporo-sphenoidal abscess the reactions were normal.
11. After the radical mastoid in uncomplicated middle-ear suppuration, the reactions were hastened in two cases and delayed in one.

Annales de Gynécologie et d'Obstétrique, Paris

November XXXVI, No. 11, pp. 657-720

55 Technic of Conservative Cesarean Section. (Technique de l'opération Césarienne conservatrice.) A. Couvelaire. Id. (Sutures dans l'opération césarienne.) A. Herrgott.

Annales de l'Institut Pasteur, Paris

November, XXIII, No. 11, pp. 841-936

56 Oxidizing Enzymes. J. Wolff and E. de Stoecklin.
57 Yellow Fever at Martinique in 1908. (Etude de l'épidémiologie amarile.) Simond, Aubert and Noc. Continued.
58 Mechanism of Immunization against Fowl Cholera. (Sur le rôle des leucocytes chez les animaux neufs et immunisés, infectés artificiellement par le microbe du choléra des poules.) A. Sulima.
59 Passage of Microbes through Intestinal Wall in Experimental Strangulation. P. Ikonnikoff.

Annales de Médecine et Chirurgie Infantiles, Paris

December 1, XIII, No. 23, pp. 793-828

60 Campaign against Infant Mortality. (Puériculture.) Périer and Gaujoux.
61 Nasolachrymal Pathology in Inherited Syphilis. Antonelli.

Archives Générales de Chirurgie, Paris

November, III, No. 11, pp. 1101-1210

62 *Perforated Gastric Ulcer. (Ulcère perforé de l'estomac traité et guéri par le drainage sans suture.) M. Leroy and J. Minet.
63 Successful Intrauterine Autoplastic Operation with Flap of Vaginal Mucosa for Cicatricial Stenosis of Cervix. G. Potel.
64 *Cicatricial Stenosis of Uterus of Therapeutic Origin. P. Mauclaire and C. Burnier.

62. **Perforated Ulcer of the Stomach.**—Leroy has been able to find records of 53 cases in France with prompt operation. The list includes only 15 with a successful outcome, and he reports another. His patient was a young woman free from digestive disturbances until the sudden onset of symptoms of gastric ulcer with perforation the fifth day. The lack of vomiting after the first led to the assumption that the perforation was in the posterior wall of the stomach so that the organ emptied its contents during the frequent retching not through the cardia but through the perforation into the sac of the omentum. The perforation occurred some time after a meal, but forty hours elapsed before the operation. Prompt recovery followed with drainage without immediate suture, and the patient has been in comparatively good health for six months to date.

64. **Cicatricial Stenosis of the Uterus of Therapeutic Origin.**—Mauclaire presents and reviews a number of cases of stenosis resulting from cauterization with the actual cautery or a caustic or curetting of the uterus, obstetrical intervention or a surgical operation on the cervix, especially the Schraeder operation. If the stenosis is left uncorrected, painful menstruation and sterility are the rule, and an abnormal pregnancy follows if conception occurs. He reviews the various measures that have been applied in treatment, generally with excellent results.

Archives des Maladies du Cœur, etc., Paris

November, II, No. 11, pp. 609-672

65 Historical and Critical Study of Paroxysmal Tachycardia and its Origin. H. Vaquez.
66 Intense Eosinophilia in Carriers of *Filaria Loa.* (Valeur de l'éosinophilie chez les malades porteurs de "filaria loa.") L. Nattan-Larrier and M. Parvu.

Bulletin de l'Académie de Médecine, Paris

November 30, LXXIII, No. 39, pp. 335-402

67 The Bacillus Proteus in Gastrointestinal Infection. (Association microbienne protéo-typhique.) H. Vincent.

December 7, No. 40, pp. 403-426

68 *Antityphoid Inoculation. (Prophylaxie et vaccination contre la fièvre typhoide.) A. Chantemesse.

68. **Antityphoid Inoculations.**—Chantemesse reviews the history of antityphoid inoculations, referring to his own pioneer work in this line in 1888, when he immunized mice by inoculation with killed typhoid bacilli. In 1899, after Wright's practical application of antityphoid vaccination to British troops in Africa, Chantemesse proposed vaccinating his assistants and pupils in his hospital service where professional typhoid infection was sadly frequent. His suggestion was accepted and the entire force in the service were injected with typhoid cultures sterilized by heat. Among the interns were Armand-Delille and Guerbet, now professor at Rouen. The agglutinating power of the serum increased in consequence of the inoculation to 100, 150 and 200 in a few weeks, and then gradually declined as the years passed, but the fixation reaction has continued positive to date. During the year just closed Guerbet accidentally swallowed several drops of a culture of typhoid bacilli while aspirating it into a pipette, but no symptoms followed; it seems probable that the antityphoid inoculation ten years before was responsible for the harmless outcome of the incident. Chantemesse had three accidents of this kind among his assistants before the inoculations were attempted, one young intern succumbing to perforation of the intestines in the severe typhoid developing six days after aspiration of the typhoid bacilli. Chantemesse urged the appointment of a committee to study the advantages and disadvantages of prophylaxis of typhoid by this method, so that the academy could officially endorse or reject it. A recent editorial in The Journal, Jan. 1, 1909, page 55, also discusses the practical value of antityphoid inoculation.

Presse Médicale, Paris

December 4, XVII, No. 97, pp. 865-880

69 Infantilism and Puniness. (Infantilisme et chétivisme.) A. Bauer.

December 8, No. 98, pp. 881-888

70 Adrenalin in Treatment of Recurring Polymorphous Dermatitis. F. Balzer and Guénot.
71 Exfoliation Treatment in Dermatology. L. M. Pautrier.
72 *Electric Test for Traumatic Neuroses. (La névrose traumatique: son syndrome réactionnel électro-musculaire.) J. Larat.

72. **Electric Test for Traumatic Neurosis.**—Larat gives the tracings in seven cases of traumatic neuroses to show the peculiar electromuscular contractions which seem to be specific for traumatic nervous diseases and are not observed in any others. The response to galvanism is increased, the anodic closure contraction equaling or surpassing the cathodic closure contraction. In health the latter surpasses the former by two-thirds. The peaks in the tracings are not rounded as in the reaction of degeneration, but are sharp and angular as with normal contractions. The increased excitability is observed both on the affected and the sound side. These findings confirm the assumption that a traumatic neurosis is a general neuropathic disturbance of the nerve centers, not a local affection.

Revue de Chirurgie, Paris

December, XXIX, No. 12, pp. 867-1020

73 *Segmentary Atrophy of the Colon. (Atrésie congénitale du colon: microcolon.) J. Okinczyc.
74 *Symmetrical Lipomatosis. (La lipomatose symétrique à predominance cervicale et son traitement chirurgical.) C. Lenormant and M. Verdun. Commenced in No. 11.

73. **Microcolon.**—Okinczyc has encountered two cases of segmentary atrophy of the colon with no indications of preceding inflammation. The findings were an autopsy surprise; both cases were in adults. He has been able to find several such cases on record but all the others were in new-born infants. He thinks it probable that the trouble is the result of torsion of some loop of the intestine, the same factor which is presumably responsible for certain cases of megacolon.

74. **Symmetrical Lipomatosis.**—Fifty-eight cases are summarized from the literature in which diffuse lipomatosis, mainly in the neck, received operative treatment. In only 27 cases was the operation completed at one sitting, the others requiring from 2 to 5 sittings. The tedious operation is not difficult and the results were good in all the cases. In 8 the cure was complete; in 8 the fragments left increased in size, and in 5 the symmetrical lipomas grew again. The ultimate history of the 37 other patients is not known, but the results reported seem to justify prompt operative intervention, the authors think, even if it has to be repeated later.

Semaine Médicale, Paris

December 1, XXIX, No. 48, pp. 565-576

75 *Albuminuria in Connection with Tuberculosis. (Albuminurie prétuberculeuse et albuminurie paratuberculeuse.) J. Teissier.

75. **Albuminuria and Prognosis of Tuberculosis.**—Teissier relates a number of instances that confirm his previous announcements in regard to the importance of periodical albuminuria as the precursor of tuberculosis, and of another form of albuminuria, in the children of tuberculous parents, who are saturated with tuberculosis antibodies. Persons with

this latter "paratuberculous albuminuria" are practically immune to tuberculosis. The significance of the two forms is thus important for the prognosis, the former leading to phthisis, the latter leading away from all tuberculous infection. He has encountered over 20 cases of the pretuberculous albuminuria in which the urine was rather scanty, and pale in the morning, at which time the albuminuria generally occurs, subsiding in the afternoon when the urine becomes darker and turbid; it is excessively toxic at all times. The elimination of albumin is generally intermittent or cyclic, or it may assume the orthostatic type except that the maximum is usually about 11 a. m. The kidney is very permeable, and the phloridzin test for sugar is strongly positive; there is no seroreaction and the arterial tension persists constantly normal. As this pretuberculous albuminuria subsides, signs of active tuberculosis become evident. Teissier explains the albuminuria as the result of the destruction of the invading *tubercle bacilli, the products thus set free inducing the* albuminuria on their passage through the kidney. When the organism is no longer able to accomplish the destruction of the bacilli, they proceed to induce an active process, while the albuminuria completely ceases. In the paratuberculous albuminuria, on the other hand, the arterial tension is permanently abnormally high, frequently 18 mm. mercury, the seroreaction is pronounced while the kidneys are not quite normally permeable, but display evidences of a slight tendency to cirrhotic nephritis, all the features suggesting parental impregnation of the organism with tuberculous toxins, thus inducing an autoimmunization. In 100 cases of intermittent albuminuria in his practice, 34 of the patients had a tuberculous family history; only 6 presented albuminuria of the pretuberculous cyclic morning type, preceding fatal infection. In the 28 other cases the albuminuria was of the paratuberculous type, and although symptoms suggestive of tuberculosis developed in a few, yet invariably spontaneous retrogression followed and the patients are still hale and hearty.

Berliner klinische Wochenschrift

December 6, XLVI, No. 49, pp. 2177-2224

76 Symptomatology of Acute Anterior Poliomyelitis. O. Foerster.
77 *Cure of Paralysis of Shoulder Muscles by Plastic Operation. (Heilung von Schultermuskellähmungen—M. trapezius bzw. serratus—durch kombinierte Muskelplastik.) M. Katzenstein.
78 Origin and Treatment of Hyperchlorhydria in Smokers. (Entstehung und Behandlung des Magensaftflusses der Gewohnheitsraucher.) M. Skaller.

77. **Cure of Paralysis of Shoulder Muscles by Plastic Operation.**—Katzenstein reports a successful plastic operation for severe paralysis of the trapezius and serratus muscles. He transplanted the pectoralis major from the upper arm to the median margin of the scapula and also changed the point of attachment of the trapezius and rhomboideus muscles in one case. In another case he used flaps from the sound trapezius and latissimus dorsi to take the place of the paralyzed trapezius.

Correspondenz-Blatt für Schweizer Aerzte, Basle

December 1, XXXIX, No. 23, pp. 801-832

79 *Course of Pulmonary Tuberculosis under Therapeutic Pneumothorax. L. Spengler.

79. **Therapeutic Pneumothorax.**—Spengler's experience with 40 cases was favorable in 25; merely transient benefit was observed in 6 and slight benefit in 6 more, while the effect was bad in 3 other cases. The measure evidently should be restricted to severe unilateral tuberculosis. If pleuritic adhesions interfere with the attempt to induce pneumothorax, an extensive extrapleural plastic operation on the thorax may be advisable. The therapeutic pneumothorax must be maintained for a year or so. He prefers the Murphy-Brauer technic, rejecting Forlanini's as dangerous on account of the liability to gas embolism.

Deutsche medizinische Wochenschrift, Berlin

December 2, XXXV, No. 48, pp. 2097-2152

80 Serotherapy and Prophylaxis in Foot-and-Mouth Disease. (Die Serotherapie, die Seroprophylaxe und die Impfung bei Maul- und Klauenseuche und deren Wert für die Veterinärpolizei.) F. Loeffler.
81 Indications and Contraindications for Sigmoidoscopy. H. Strauss.
82 Therapeutic Action of Stasis Hyperemia in Erysipelas. (Stauungshyperämie bei Erysipel.) G. Jochmann and C. Schöne.
83 Determination of Tubercle Bacilli in Sputum by Ellermann-Erlandsen Technic. (Nachweis von Tuberkelbacillen im Sputum nach der Doppelmethode von Ellermann-Erlandsen.) H. Kögel.
84 Staining of Sections. (Färbung von Schnittpräparaten mit der Giemsaschen Azur-Eosin-Methode.) A. Schuberg.
85 *Momburg Belt Tourniquet. (Zur Technik der Blutleere der unteren Körperhälfte.) Momburg.
86 Treatment of Chronic Deformities. Andreae.
87 Apparatus for Mobilization of Wrist and Finger Joints in Superheated Air. (Hand- und Fingergelenk-Mobilisierungsapparat im Heissluftbad.) F. Bähr.
88 Diagnosis of Ovarian Tumors and their Interference with Delivery. (Ovarientumoren und ihren Geburtsstörungen.) R. Jolly.
89 Death from Hanging. (Zur Lehre vom Erhängungstode.) A. de Dominicis.

December 9, No. 49, pp. 2153-2200

90 *Successful Removal of Fibroma in the Pancreas. W. Körte.
91 *Spinal General Anesthesia. (Die Rhachianästhesie zur Anästhesierung sämtlicher Körperregionen.) T. Jonnesco.
92 Intestinal Autointoxication. (Die Wiederbelebung der intestinalen Autointoxikationslehre in Frankreich und der "Combismus.") A. Schmidt.
93 *Transition of Chronic Myeloid Léucemia into Acute Myeloblast Leucemia. C. Klieneberger.
94 *Treatment of Syphilis with Quinin. (Weitere Erfahrungen über die Behandlung der Syphilis mit Chininpräparaten.) R. Lenzmann.
95 *Resection of Pelvis for Sarcoma. (Beckenresektion wegen Sarkom.) H. Riese.
96 *Infant Feeding at High Altitudes. (Der Säugling im Hochgebirge.) H. Neumann.
97 *Improved Roentgen-Ray Technic. (1. Identifikation von Punkten im Röntgenbilde, ein teilweiser, aber objektiver Ersatz der Röntgenostereoskopie. 2. Gleichzeitige Doppelaufnahmen von Röntgenbildern.) M. Levy-Dorn.

85. **The Momburg Belt Tourniquet.**—Momburg writes from Bier's clinic at Berlin to call attention to a few minor points in the technic. The pelvis should be raised rather high in order to have the intestines slide down out of the way. This also removes a large proportion of the nerve terminals from the pressure of the tube wound around the waist. He does not hesitate to shake the abdomen to aid in the settling down toward the diaphragm of the intestines. He reiterates his advice to apply the Esmarch bandage to both thighs as a preliminary measure. Merely the amount of blood normally in the legs is retained in them by this bandaging; without this, raising the pelvis would send too much blood down to the heart region. Instead of pulling hard on the rubber tube he advises winding it around more times. The technic has been applied in over 200 cases to date, including 2 patients with cardiac defects who bore it without mishap. A pad is not necessary but the friction as the tube is drawn under the sacrum must not be forgotten; when this is overlooked the constriction may not be as even as supposed. (The technic for applying the constricting belt was illustrated in The Journal, Oct. 30, 1909, page 1519.)

90. *Successful Removal of a Fibroma in the Pancreas.*—Körte thinks that this is the first case of the kind on record. The patient was a woman of 51 and the tumor in the pancreas had been noticed ten months before its removal, but caused no disturbance except from compression of the neighboring organs. No benefit seemed to be derived afterward from the dietetic measures that have been recommended as helping to heal the fistula into the pancreas. He had this same negative experience with three other cases of pancreatic fistula, the secretion showing no change. In all his cases the outflow ceased spontaneously in five or six weeks.

91. See The Journal, Nov. 27, 1909, page 1831.

93. *Fulminating Modification of Chronic Leucemia Under Roentgen-Ray Treatment.*—Klieneberger reports two cases in which a chronic myeloid leucemia suddenly changed into an acute and fatal myeloblast leucemia after Roentgen treatment. This acute transformation should be guarded against by refraining from continuing *x*-ray treatment when no further benefit is apparent, and immediate suspension when *myeloblasts* appear in large numbers. This transformation is so unusual, however, he adds, that it should not deter physicians from Roentgen-ray treatment under these precautions.

94. **Treatment of Syphilis with Quinin.**—Lenzmann says that sooner or later the syphilis germ seems to become refractory to mercury and iodid and then quinin may be usefully applied.

95. **Resection of the Pelvis for Sarcoma.**—Riese has performed this operation twice in the last eight months and has found the Momburg belt tourniquet an important aid in the removal of a sarcoma near the sacro-iliac articulation. The tumor had a broad base and was as large as two fists; the patient was a girl of 13. Under the belt constriction the operation was done without loss of any blood, while the bloodless condition of the vessels much facilitated the operation. There seemed to be some more or less transient disturbance in the splanchnic innervation afterward, weakness in the domain of the femoral and sciatic nerves and paralysis of the peroneal. He does not know whether to ascribe this to the constriction or to pressure from the splint or the retractors used during the operation.

96. **Mountain Resorts for Infants.**—Neumann has been investigating conditions in Switzerland and has found that the dryness and the purity of the air and the sunshine seem to ensure the thriving of infants, regardless of the method of feeding. He urges sending infants and small children to mountain health resorts as a therapeutic measure even in winter. Rachitis is unknown and nervous troubles are rare in Arosa at an altitude of about 5,500 feet.

97. **Improved Skiagraphy.**—Levy-Dorn describes a method to obtain the effect of stereoscopy without the usual complicated technic. A cork an inch and one-third high, pierced with a pin, is used to center the skiagrams. After the exposure has been made the object is covered with a sheet of lead and the tube is moved to the second position as for a stereoscopic exposure, but only the cork is exposed this time and only for a brief second. The plate is then changed, the object exposed, then covered with lead as before, and the tube moved back to the first position and the cork alone exposed again for a second. The shadow of the pin in the cork gives the centering point. Another method is to take the skiagraph of the object on the same plate from both positions of the tube. By raising the object a certain distance above the plate, it is possible to cast the shadow diagonally in turn first on one half of the plate and then on the other.

Fortschritte der Medizin, Paris

November 20, XXVII, No. 32, 1201-1232

98 *Breast-Fed Infants who are Not Thriving. (Schlecht gedeihende Brustkinder.) M. Thiemich. Commenced in No. 31.

98. **Breast-fed Infants Who Are Not Thriving.**—Thiemich warns that when children are not thriving on breast milk the trouble is not with the milk but with the child in almost every instance. Constitutional disease in the child and infection from the parents may interfere with the infant's thriving, and breast milk does not guarantee against this. But breast milk is all the more urgently needed in these very cases and the physician must ponder well before he consents to the weaning of the child even when it does not seem to be doing well on breast milk. He relates a number of typical instances in which the child did not gain in weight for months at a time but the discovery of previously unsuspected tuberculosis in the family or of some acute infectious process in the mother or inherited taint in the child explained the conditions. The tendency to eczema is frequently responsible for the lack of thriving; children with this exudative diathesis seem to display some anomaly in the metabolism of fat.

Jahrbuch für Kinderheilkunde, Berlin

November, LXX, No. 5, pp. 529-666

99 *The Exudative Diathesis, Scrofula and Tuberculosis. A. Czerny.
100 Clinical and Anatomic Study of Congenital and Early Acquired Rachitis. II. (Anatomische Untersuchungen über sogen. angeborene und über frühzeitig erworbene Rachitis.) E. Wieland.
101 Histology of Infant Intestine. (Histologische Untersuchungen des Darmes von Säuglingen.) N. Reika.
102 Action of Lime Ions on [illegible] [illegible] N. Krasnogorski.

99. **Prevention and Cure of Eczema, Catarrh, etc., in Infants: the Exudative Diathesis.**—Czerny's conception of a congenital tendency to processes with exudation is important from the fact that he seems to be proving that this diathesis is as amenable to dietetic measures as diabetes, and can thus be kept latent until the child outgrows it, or it can be fanned into a flame by the food. The constitutional anomaly usually soon becomes evident by the progress of different infants under the same conditions of feeding. According to the nature of the anomaly, the alimentary disturbance induces either rachitis, anemia, nervous irritability or processes with oozing, such as milk crust, eczema, strophulus and catarrhal affections of various mucosæ, especially of the air passages and the status lymphaticus. The first two years of life are the most important for the development of this exudative diathesis. As the child grows older the tendency decreases, in direct contrast to what is observed with the uric acid diathesis. Besides improper feeding, intercurrent infections are liable to rouse the latent diathesis to active manifestations or to aggravate it if existing; this is frequently noticed after vaccination. He explains the rapid increase in weight of the new-born infant as due mostly to the intake of water; the infant, like the seed, has stored up in itself the elements of growth and needs merely water for them to expand in rapid growth and development. After the first four or six months the child depends on the nourishment supplied from without for its further growth. Born with the exudative diathesis, any oversupply of food during the first few months, even excess of water, evokes manifestations of this congenital defect in the chemistry of the body. He thinks it probable that this defect involves particularly the tissues which render possible the fluctuations in the water content of the organism. Overfeeding, especially with milk and eggs, rouses the latent tendency to activity and is one reason why this diathesis torments mostly well-to-do families. The derangement is probably in the fat metabolism as the children who are able to tolerate only a small proportion of milk-fat are the ones who show the most pronounced types of the diathesis and for whom the slightest overfeeding is particularly injurious. The manifestations, he says, can be induced and banished at will in young infants by measures to increase or to reduce the water content of the body. In his clinic at Breslau he has numbers of children with tuberculosis grafted on the exudative diathesis, but as he is able by dietetic measures to correct the latter tendency and keep this diathesis in check, the tuberculous children show no signs of "scrofula." The status lymphaticus, he adds, is probably one manifestation of the exudative diathesis as it can be checked and cured by the same dietetic measures. Children with the exudative diathesis do not thrive so well on a purin-poor diet.

Medizinische Klinik, Berlin

November 28, V, No. 48, pp. 1803-1840, and Supplement

103 *Modern Treatment of Congenital Dislocation of the Hip-Joint. (Die moderne Behandlung der angeborenen Hüftluxation.) O. Vulpius.
104 *Puncture of the Corpus Callosum to Reduce Intracranial Pressure in 22 Cases. (Allgemeiner Bericht über 22 Gehirnoperationen mittels Balkenstiches.) G. Anton.
105 *Serodiagnosis of Syp[illegible] ische Beobachtungen übe[illegible] Reaktion und deren [illegible] F. Glaser and I. Wolf[illegible]
106 *Pyloric Spasm and St[illegible] und Pylorusstenose im Säuglingsalter.) B. Bendix.
107 *Quinin and Cancer. (Chinin und Krebs.) F. Strone.
108 *Paraffin Treatment of Chronic Constipation. Lipowski and O. Rhode.
109 Pathology of Tuberculosis in Children. (Pathologie der Kindertuberkulose.) Engel.

December 5, No. 49, pp. 1841-1876

110 *Causes of Pain in Gynecologic Conditions. (Ursachen der Schmerzempfindung auf dem Gebiete der Gynäkologie.) E. Opitz.
111 *[illegible] (Ueber normalen Darm und normale [illegible] Fiedern.
112 [illegible] F. Reiche.

103. **Treatment of Congenital Dislocation of the Hip-Joint.**—This article seeks to impress on the general practitioner the necessity for early diagnosis and prompt treatment of the condition in all circumstances. Left untreated, further deformity results, limping and scoliosis of the spine with unilateral dislocation, lordosis when deformity is bilateral. Vulpius is a consistent advocate of this bloodless technic which he describes in detail, stating that functional healing or great improvement has been attained in over 90 per cent. of his cases, the few failures being due to neglect of the limits imposed by age or to lack of proper cooperation on the part of the family. No child is too young for treatment to be

commenced, but bilateral dislocation can seldom be successfully corrected after the age of 6 and unilateral after 10. The most auspicious age is during infancy. An ideal result was obtained in only 60 or 70 per cent. of his unilateral and in 40 or 50 per cent. of the double dislocations, but the patient and family are generally content with functional success.

104. **Puncture of Corpus Callosum.**—Bramann and Anton's success in opening artificially a communication between the ventricle and the subdural space has already been mentioned in The Journal, Oct. 30, 1909, page 1520. A small trephin opening is made behind the coronary suture and a cannula introduced down to the falx cerebri and along this to the corpus callosum through which the tip of the cannula is pushed. This opens a passage for the cerebrospinal fluid from the ventricle into the subdural space and thus reduces the intracranial fluid pressure in the ventricle. Anton has performed this operation on 22 patients and the results have surpassed his anticipations. It diverts the fluid in hydrocephalus, thus preventing deformity of the skull, compression, and atrophy of the brain. It has also relieved in cases of brain tumors, averting danger of congestion and hyperemia in the optic nerve and restoring conditions approximately to normal. The tormenting vertigo, headache and vomiting were promptly and favorably influenced in a number of cases. The symptoms induced by the tumor were thus rendered plainer and time was gained to postpone the removal of the tumor until its site and nature could be more accurately determined. It is even possible in puncturing the corpus callosum to explore the ventricle and detect any change in its shape or contents. The puncture of the corpus callosum is also useful as a preliminary to or during an operation on the skull in which there is danger of hernia or laceration of the brain. It should also be given a trial, he declares, in cases of steeple skull and similar deformities in which there is danger of injury of the optic nerve from compression.

105. **Serodiagnosis of Syphilis and Autopsy Findings.**—In the extensive research described, signs of syphilis were found postmortem in all cases in which the Wassermann test had given positive findings, except three. In these three the disease may have healed so completely as to leave no anatomic trace. But the autopsy positive findings were often merely scars, so that a positive seroreaction by no means indicates always active virus.

106. **Treatment of Spasm and Stenosis of the Pylorus in Infants.**—Bendix regards these affections as pertaining exclusively to the domain of the internists, with breast milk as the main reliance. After a day on which nothing but water is allowed, he lets the infant nurse at will, but if vomiting is very frequent and copious he restricts the amount and increases the number of feedings. From six to eight weeks may pass before distinct improvement becomes evident and the physician must be firm and not let himself be dissuaded from breast-milk feeding, supplementing the child's nursing possibly by rectal enemas of breast milk, from 50 to 150 gm. several times a day. He lays great stress further on supplying fluids freely to the child to prevent water starvation. He does not approve of lavage of the stomach except possibly once at the beginning of treatment; it is liable to induce severe collapse. Moist heat to the stomach region, especially before meals, frequent warm baths, and small doses of opium with valerian or an alkali are the main reliance. He has never had to call in a surgeon, finding that a turn for the better occurred invariably by the end of the fifth or sixth week. The first sign of improvement is when the child ceases to lose weight.

107. **Quinin and Cancer.**—Stroné has treated epithelioma with local application of quinin stirred with water to a paste and applied with a cotton wad in a number of cases in which operation was refused. In every instance the quinin had a caustic action on the growth, eating it out until the ulceration was three times or more the size and depth as at first. He renewed the quinin every second day for four times. The lesion then began to heal over under a simple iodoform dressing, and by the twentieth day had entirely healed. This experience has been repeated too many times, he asserts, for it to be a mere coincidence; the quinin applications are continued until the lesion ceases to spread under its influence. They are also useful, he believes, in palliative treatment of inoperable uterine cancer. The quinin also serves to differentiate cancer from ordinary erosions; with the latter there is none of the destructive action observed with cancer. He advises application of quinin as a preliminary to radical operation as it aids in clearing up the diagnosis.

108. **Paraffin in Treatment of Chronic Constipation.**—Lipowski here reports the details of 8 typical cases in which he successfully applied his method of paraffin treatment described in The Journal, Sept. 4, 1909, page 822.

110. **Causes of Gynecologic Pain.**—Opitz has made a point of examining all his patients regularly to detect the three cardinal symptoms of hysteria: the modifications of sensibility, the changes in the reflexes and the hysterogenous zones. Much to his surprise he has encountered this triad in the overwhelming majority of all his gynecologic patients. It seems absolutely impossible to believe that such a large proportion of women can be typical hysterics as these findings would seem to prove. He protests against the idea that suggestion plays an important part in treatment of gynecologic affections, citing among the arguments against this assumption the fact that a new method of treatment instituted by the same physician and under the same conditions otherwise may cure while all previous measures proved unavailing. The trouble is to locate the underlying organic affection and not label everything neurasthenia or hysteria that we are as yet unable to explain. An explanation can be found if diligently sought. One frequent cause for severe pain is inflammation of a vein, either of the wall tissue itself or of the nerve terminals in it. In one case intense pain for which no cause could be discovered ceased abruptly as thrombosis developed in the vein in the region. When irritated, the sympathetic nerve can transmit sensory stimuli, and he is convinced that many affections now classed as functional neuroses are in reality due to irritation of some portion of the sympathetic system, such as the pain in front of the spine in the epigastrium, which sometimes accompanies enteroptosis or may occur without it, and for which the solar ganglion is evidently responsible. With it the aorta can generally be palpated as a pulsating tender cord. In four cases he discovered varicose changes in the large veins in the small pelvis at the point where the patients experienced great pain for which no cause could be discovered until the laparotomy revealed the changes in the veins. The pain subsided after simple ligation of the ovarian vein. Other experiences have shown that mere congestion in the veins, causing distention, may elicit pain. In some cases the pain develops when the patients lie in the dorsal decubitus, while it ceases in other positions, confirming the assumption of local congestion as the cause. In these cases a specially tender point can generally be detected at the hypogastric or ovarian vein; sometimes a varicose enlargement can be palpated. It is possible that medical measures alone, hydrotherapy, general measures to combat the plethora in the pelvis, with possibly gentle massage of the region through the vaginal wall, might prove effectual. Dysmenorrhea may be due to this cause in some cases, especially with a tendency to retarded development of the genitalia.

111. **Normal Intestinal Functioning.**—Federn reiterates his assertions in regard to the great frequency of partial atrophy of the intestines causing retention and autointoxication as with residual urine. For twenty years he has been studying the subject and has been able to detect this tendency to localized atrophy by delicate percussion along the course of the bowel. The importance of this segmental atrophy, inducing conditions of toxin production and absorption, cannot be overestimated, he declares. He has found the blood pressure permanently high in all such cases. He discusses in detail the physiology of the normal intestine.

Münchener medizinische Wochenschrift

November 30, LVI, No. 48, pp. 2457-2504

113 *[illegible] (Zur chirurgischen Behandlung des [illegible]) Kehr.
114 [illegible] Poliomyelitis. (Frühstadien der [illegible]) E. Muller.
115 *Immediate Massage of the Heart in Anesthesia Asphyxia. (Unmittelbare Herzmassage bei Narkosentod.) E. Rehn.

116 *Saline Infusion as Aid to Prognosis in Peritonitis. (Lässt sich für die Anwendung der intravenösen Kochsalzinfusionen bei der Peritonitis eine bestimmte Indikationsstellung ergrunden?) A. v. Lichtenberg.
117 Treatment of Fractures. (Frakturbehandlung nach Steinmann und nach Zuppinger.) T. Christen.
118 Myocarditis and Changes in Striped Muscles in Rheumatism. (Ueber Myokarditis und Veränderung der quergestreiften Muskeln bei Rheumatismus.) P. Geipel.
119 Seroreaction in Scarlet Fever. (Komplementbindung bei Scharlach.) A. Uffenheimer.
120 Tuberculin Salve Test. (Ueber die Morosche Salbenprobe.) F. Weil.
121 Improved Technic for Differentiation of Bacteria. (Veränderungen zweier Nährböden — Rosolsäure- und Blutagar — durch Säure bezw. Alkali bildende Bakterien.) M. Mandelbaum.
122 Psychophysical Examination with the Galvanometer. F. Peterson and E. W. Scripture.
123 Esophagoscopy in 110 Cases. T. Kölliker.
124 Electrocardiogram of Absolute Irregular Pulse. (Fehlen der Vorhofzacke (P) im Elektrokardiogramm beim Irregularis perpetuus.) H. E. Hering.
125 Affinity for Iodin of Adrenalin. R. Hoffmann.

113. **Chronic Jaundice.**—This article is an appeal by Kehr for an earlier diagnosis of cancer of the biliary passages. He frequently has to operate in cancer cases in which the patients have been treated for months on the assumption of catarrhal jaundice. When the jaundice commences without pain and increases gradually from week to week, while the gall-bladder increases in size, jaundice is the result of obstruction of the common bile duct from a tumor or cicatricial growth. But if the jaundice is accompanied or preceded by colics, if the intensity of the jaundice fluctuates, and if chills and fever are observed, gall-stone obstruction is probable. If no benefit is apparent after six weeks of bed rest, local heat and dieting, if the patient is losing appetite and strength, surgical intervention should not be longer delayed. He rejects entirely the various remedies on the market that claim to promote the secretion of bile; they have no effect, he says, except when Nature happens to accomplish coincidently a spontaneous cure, the stone making a fistula from the duct into the duodenum or otherwise escaping. But this occurs too seldom to be depended on. The danger from chronic jaundice is the development of biliary cirrhosis, cholangitis and cholemic diathesis. He does not like to assume the burden of the unsuccessful operation when the fault lies with the internist's delay, which has permitted conditions to reach an irremediable stage. No matter how guarded the surgeon's comment may be, yet the conditions speak for themselves. Practitioners should not wait to summon the surgeon until the case has no further interest for any one but the pathologic anatomist. In many cases the conditions simulate inoperable carcinoma but operation reveals merely an inflammatory condition in the pancreas capable of retrogression. The dread of postoperative hemorrhage and peritonitis is exaggerated. He lost only one patient from hemorrhage in his last series of 60 with jaundice, and this patient had cancer; there has been no tendency to peritonitis in any of his last 125 cases. In 45 of this group the patients had more or less jaundice; 36 recovered, 6 with advanced cancer or biliary cirrhosis died, and 3 succumbed to valvular disease or cachexia. In 80 other patients free from jaundice only 2 succumbed and these fatalities were due to a complicating echinococcus disease or perforation. He writes from an experience of 1,500 operations on the biliary apparatus.

115. **Direct Massage of the Heart in Chloroform Asphyxia.**—In the case reported, Rehn applied direct massage to the heart in addition to artificial respiration by the usual measures supplemented by a differential pressure procedure. The effect of the Brauer positive-pressure apparatus was prompt and striking. Two and one-third hours after the circulatory syncope the heart action and respiration were fully restored, the first signs of contraction of the heart being observed after 70 minutes. The patient was a healthy boy of 7, taking the chloroform for correction of a slight deformity on the left hand. After restoration of the circulation and respiration the condition remained satisfactory for two hours, but suddenly the breathing stopped; the heart was kept beating for four hours longer. In massaging the heart through the diaphragm the pleura had been torn but the massaging finger plugged the opening. When the hand was removed, pneumothorax followed, proving fatal. The case teaches the importance of refraining from injury of the pleura, as the circulatory syncope had been entirely conquered. The differential pressure procedure has many advantages; it dispenses with tracheotomy and permits exact dosage of the air supplied and also admixture of oxygen.

116. **Saline Infusion as an Aid to Prognosis in Peritonitis.**—Lichtenberg states that in peritonitis the degree and permanence of the improvement in the circulation following intravenous saline infusion is a reliable index for the amount of vasomotor paralysis. In health, saline infusion causes only slight and transient changes in the blood pressure but when the vascular tonicity is reduced saline infusion improves conditions and the effect persists in proportion to the recuperative power of the vessels. Saline infusion before the operation is thus useful from several points of view, improving conditions for the operation and also revealing the extent of the paralysis of the vasomotors. Addition of a little suprarenal extract magnifies the effect. If the infusion causes no improvement in the conditions in the circulation little benefit, he asserts, can be anticipated *from the operation*.

Wiener klinische Wochenschrift, Vienna

December 9, XXII, No. 49, pp. 1697-1736

126 Trachoma Bodies. (Die freie Initialform der Prowazekschen Einschlüsse.) K. Lindner.
127 Experimental Research on Acute Anterior Poliomyelitis. C. Leiner and R. v. Weisner.
128 *Determination of Hemolysis and its Clinical Importance. (Nachweis und die klinische Bedeutung hämolytischer Erscheinungen.) K. R. v. Stejskal.
129 *Traumatic Hysterical Paralysis. (Hysterische Beinlähmung.) E. Raimann and A. Fuchs.

128. **Hemolytic Phenomena and their Clinical Importance.**—Stejskal describes a simple test-tube method of determining hemolytic conditions in the blood and reports a number of cases of pernicious anemia in which such were evident. The positive findings were only in patients with cirrhotic processes in the liver and congestion of bile.

129. **Traumatic Hysterical Paralysis.**—Raimann comments on a case of dislocation of the ankle, the accident occurring from defective flooring in a depot. The claims for damages led to twelve trials with almost endless medical expert testimony and the end is not yet. He cites the case to prove the importance of referring neurologic cases to the neurologists and to confirm anew the evils from the current accident insurance legislation which breeds neuroses out of trifling injuries. Blunders in diagnosis here have the most far-reaching consequences.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXV, No 2, pp. 283-568. Last indexed October 16, p. 1343

130 Displacement of the Ovaries. (Lageveränderungen der Ovarien.) C. H. Stratz.
131 *Retention of Membranes and Scraps of Placenta as Cause of Puerperal Fever. (Retention von Eihauten und Placentarresten als Ursache des Wochenbettfiebers.) E. Puppel.
132 Influence of Age and Number of Childbirths on Frequency of Twin Births. (Einfluss von Alter und Geburtenzahl der Mutter auf die Häufigkeit der ein- und zweieiigen Zwillingsgeburten.) W. Weinberg.
133 *Jaundice Always a Sign of Insufficiency of the Liver. (Gibt es eine den Frauen eigentumliche Form der Gelbsucht.) P. Rissmann.
134 Hemorrhagic Chronic Metritis and Endometritis. (Die Metropathia haemorrhagica.) O. Pankow.
135 Plasma Cells in Gynecologic Affections. (Ueber Plasmazellen und ihr Vorhandensein bei den Erkrankungen der weiblichen Geschlechtsorgane, speciell des Endometriums.) J. Frey.
136 Differentiation of Menstrual and Gravid Decidua. (Lässt sich mikroskopisch eine Decidua menstrualis von einer Decidua graviditatis unter allen Umständen unterscheiden?) E. Eicke.
137 Presentation with Spine straight in Median Line. (Der hohe Gradstand: Positio occipitalis sacralis et pubica.) W. Liepmann.

131. **Retention of Fetal Membranes or Scraps of Placenta as Cause of Puerperal Fever.**—Puppel reports six cases of severe puerperal fever, the sepsis proceeding from retained membranes and recovery following their removal. He makes it a practice to examine the interior of the uterus whenever there is a tendency to fever unless medical inspection shows the expelled membranes and placenta to be complete.

133. **Jaundice in Women.**—Rissmann discusses whether or not there is any special form of jaundice peculiar to pregnancy and the puerperium, deciding in the negative, his verdict being

that jaundice is always a sign of insufficiency of the liver. The prognosis cannot be based on the jaundice alone. The insufficiency of the liver may lead to brain symptoms. In bacterial diseases there may be hemorrhages from mucous membranes, especially during pregnancy. An afebrile course, slow pulse, and only slight disturbance of the general health are signs that the jaundice in the pregnant woman is of a mild form. The behavior of the pulse is the main criterion for the prognosis. Simple mild jaundice in the pregnant woman does not seem dangerous for the child; in one such case reported jaundice for six months owing to obstruction of the common bile duct by a stone did not affect the fetus unfavorably, so far as could be discovered. If the child suffers from the jaundice the primal cause underlying the jaundice must be responsible or some complication. The intoxication causing the insufficiency of the liver or infection or fever or existing nephritis or syphilis are the factors injuring the fetus and not the bile acids. The surgical causes for jaundice must be removed, a gall-stone operation deferred no longer, and if there are indications of the severest form of jaundice the pregnancy must be interrupted. Nothing to date has been proved in regard to an embryogenic origin for the jaundice, but severe changes in the liver with jaundice such as accompany sometimes the toxemia of pregnancy, belong in the syndrome of eclampsia, with or without convulsions.

Zentralblatt für Chirurgie, Leipsic

December 11, XXXVI, No. 50, pp. 1713-1744

138 Care of Stump of Bronchus after Removal of Lung. (Zur Frage der Versorgung des Bronchusstumpfes bei Lungenexstirpation.) W. Meyer.

Zentralblatt für Gynäkologie, Leipsic

December 11, XXXIII, No. 50, pp. 1697-1728

139 Treatment of Eclampsia. A. Dienst.
140 Three Cases of Appendicitis in Pregnancy. (Appendicitis in graviditate.) F. Stähler.
141 Management of Shoulder Presentation after Death of Fetus. (Zur Behandlung der verschleppten Querlagen.) E. Herz.

Gazzetta degli Ospedali e delle Cliniche, Milan

November 30, XXX, No. 143, pp. 1513-1520

142 Persulphate of Sodium for Detection of Adrenalin. (Il persolfato di sodio come rivelatore dell'adrenalina.) F. Pancrazio.

December 5, No. 145, pp. 1521-1544

143 *Addison's Disease. (Osservazioni cliniche sopra la Malattia di Addison.) G. Morelli.

143. **Addison's Disease.**—Morelli reports a few cases to sustain his assertions that bronzing is not pathognomonic of any special disease; it may appear isolated. Addison's disease may also occur in persons free from tuberculous infection. Tuberculosis, therefore, is not the only or the inevitable cause of the affection. It even seems possible in some cases that the tuberculosis becomes grafted later as a consequence of the disturbances resulting from the primary insufficiency of the suprarenal capsules. Addison's disease may retrogress and complete recovery follow if the patient has enough rallying powers. On the other hand, the Addison syndrome may develop in the course of the most diverse morbid processes in the abdomen. In one of the cases reported one set of symptoms from suprarenal insufficiency was superposed on another set from climacteric disturbances but all mostly subsided together after the menopause.

Riforma Medica, Naples

December 6, XXV, No. 49, pp. 1345-1372

144 Pyogenic Properties of Bacillus of Malta Fever. (Sul potere piogeno del bacillo melitense.) A. Cantani.
145 Two Cases of Bilateral Tumors in Male Breast. (Tumori bilaterali a tipo familiare in mammelle maschili e sul loro probabile significato.) F. Gangitano.
146 Production of Typical Pain at McBurney's Point in Appendicitis by Indirect Mean [illegible] diretta del dolore tipico di [illegible] Paglieri.
147 Intradermal [illegible] termorcazione alla tuberculin..., [illegible] and A. Calderara.

Hospitalstidende, Copenhagen

November 17, LII, No. 46, pp. 1473-1512

148 *Indications for and Effect of Gastroenterostomy. A. Blad.

148. **Mode of Action and Indications for Gastroenterostomy.**—Blad found that the best results in regard to improved evacuation of the stomach after a gastroenterostomy, in his 20 cases, were obtained when the pylorus had been much obstructed. The improvement in the patient's condition after the operation is not dependent on whether the motor functioning is improved or not. The reflux of pancreatic and intestinal juice through the new opening into the stomach dilutes the excessively acid stomach content and thus renders it less irritating, allowing ulcerations a chance to heal. There is also evidently some reflex inhibiting action on the secretory functioning after the operation. On the other hand, not much benefit need be anticipated from gastroenterostomy in ulcer complicated with gastritis and achylia with a permeable pylorus. In 2 such cases an ulcer in the lesser curvature was accompanied by pronounced achylia but the pylorus was normal; the gastroenterostomy did not improve conditions in the least but rather seemed to aggravate them.

Ugeskrift for Læger, Copenhagen

November 11, LXXI, No. 45, pp. 1227-1252

149 *Tincture of Iodin for Disinfection of the Skin. (Jodtinktur som Huddesinficiens.) A. Pers. Commenced in No. 43.
150 Technic for Making Plaster Casts. (Lidt om Gipsteknik.) E. Nyrop.

November 18, No. 46, pp. 1253-1278

151 Treatment of Delirium Tremens with Veronal. V. F. Møller.

149. **Iodin Disinfection of the Skin.**—Pers joins the chorus of foreign surgeons who are lauding the effects of swabbing with tincture of iodin as the sole means of disinfecting the field of operation, dispensing entirely with scrubbing and washing of any kind. The method was introduced by Grossich, as mentioned in these columns at the time, Dec. 5, 1908, page 2012. Pers has applied this technic in 67 major operations, 29 others and 7 extensive suppurative processes, and has been much impressed with its superiority. He says that it is certainly destined to supplant scrubbing just as the disinfectant spray has been discarded, both macerating the tissues and stirring up the germs, mobilizing them and bringing the deep ones to the surface whence they readily find their way into the wound. The part is swabbed with a 10 or 12 per cent. tincture of iodin applied to the dry skin after it has been dry shaved. The iodin is applied as freely as the usual scrubbing process and over as large an extent. After the anesthetic has been given, the field is swabbed once more with the iodin, and when all is completed the suture is swabbed again. No mishaps were observed by Grossich even when a third of the whole body was swabbed with the iodin. When possible the patient is bathed the day before and puts on fresh linen, but otherwise he applies the iodin to the unwashed wound.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

The Battle of the Clubs. A Reprint of the Reports of the Special Commissioner of the *Lancet* Appointed to Enquire into Medical Aid Societies. Paper. Pp. 230. Price, 1 shilling. London: The *Lancet*, 423 Strand, W. C., 1909.

Infectious Diseases. A Practical Text-Book. By Claude Buchanan Ker, M.D., F.R.C.P. Medical Superintendent, City Hospital, Edinburgh. Cloth. Pp. 555, with 66 illustrations. Price, $7. London: Oxford University Press, 1909.

Bibliography of Trypanosomiasis. Embracing original Papers published prior to April, 1909, and References to Works and Papers on Tsetse-Flies, especially [illegible] Compiled by G. A. Thimm, Librarian, [illegible] Paper. Pp. 288. Price, 4 shillings net. [illegible] Bureau, Royal Society, Burlington House, [illegible]

Heart [illegible] and the Nauheim-Schott Treatment [illegible] A.M., M.D., *Clinical* Professor of Hea[illegible] Fordham University. Pp. 284, with [illegible] Cloth. Price, $3. New York: E. B. Treat and Company, 1909.

Nervous and Mental Diseases. Edited by Hugh T. Patrick, M.D., Professor of Neurology in the Chicago Polyclinic and Charles L. Mix, A.M., Professor of Physical Diagnosis in the Northwestern University Medical School. Vol. X of The Practical *Medicine* Series. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago *Postgraduate* Medical School. Cloth. Pp. 248, with illustrations. Price, $1.25. Series 1909. Chicago: The Year-Book Publishers.

Skin and Venereal Diseases; Miscellaneous Topics. Edited by W. L. Baum, M.D., and Harold [illegible] IX of the Practical Medicine Series. Under [illegible] Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Cloth. Pp. 240, with illustrations. Price, $1.25. Series 1909. Chicago: The Year-Book Publishers.

The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 4 CHICAGO, ILLINOIS JANUARY 22, 1910

Original Articles

THE FEDERAL CONTROL OF SERUMS, VACCINES, ETC.

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Some seven years ago Congress for the first time passed a bill,[1] the object of which was to control the purity and potency of certain remedial substances which enter into interstate traffic. This enactment, which is now a law of the land, provides for a complete system of governmental supervision over the establishments producing vaccines, viruses, serums, toxins, antitoxins and analogous products. This surveillance consists of (1) inspections; (2) licenses and (3) methods of control or check-testing in the Hygienic Laboratory, which serve to verify the care and efficiency with which the products in question are made and marketed.

The law requires that each package of virus, serum, toxin, antitoxin or other product be plainly marked with the proper name of the article contained therein; the name, address and license number of the manufacturer, and the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results.

The law further provides a penalty of $500 or imprisonment not exceeding one year in the discretion of the court for any violations of its provisions, and provides a still greater penalty in the power to suspend or revoke licenses for cause.

It must be clearly borne in mind that the federal supervision over the biologic products in question applies only to interstate traffic in said articles. Thus, vaccine virus prepared by the Massachusetts State Board of Health for sale, barter or exchange in Massachusetts does not come under the purview of the law, but this vaccine virus cannot cross the state border without an inspection, license and government control, as required by the law of July 1, 1902, above referred to.

THE NEED AND USES OF THE LAW

At the first inspection it was found that irresponsible persons were making and marketing biologic products without sufficient care or knowledge to insure safety and reliability. I was surprised to note the haphazard way, the antiquated methods and the lack of care with which some of the biologic products were produced before the government took a hand in these matters. Four such firms were at once refused licenses, and, not being able to produce a safe and reliable product in accordance with modern methods, they went out of business. Several applications from other persons or firms have since been refused licenses for similar reasons. Most of the remainder were required to remodel their establishments, change the personnel or improve their methods before being licensed to engage in interstate traffic.

Since the operation of the law a marked improvement has taken place in vaccine virus; standards for measuring the strength of diphtheria and tetanus antitoxins have been established; both the diphtheria and tetanus antitoxins found on the market have a decidedly increased potency; weak serums are forbidden;[2] contaminated or weak serums and vaccines which have been discovered have been promptly withdrawn from the market; false or misleading labels have been changed, and in general the licensed manufacturers have reached a high state of efficiency, and have spent much money to improve their personnel and property. The law has been enforced without fear or favor.

While the law has been a material help to the practitioner and his patient, it has also been of benefit to the manufacturers in pointing out defects, correcting faults, avoiding pitfalls, improving methods and inspiring confidence in their products.

THE INSPECTIONS

The inspections are made at least once a year, and oftener when necessary, by an officer of the Public Health and Marine-Hospital Service. These inspections are not perfunctory, but comprise a very searching inquiry into the methods of manufacture, the competency of those employed to carry on the work, and into the efficiency of the material equipment. Foreign establishments desiring to do business in the United States must submit to the same inspection, and are required to have licenses similar in all respects to those required of domestic establishments. To this some foreign establishments at first demurred, but when it was found that importations of their products without a license would be impossible they submitted to the law and its regulations.

At present every confidence may be had in all biologic products made under government license. These products are now carefully standardized whenever possible by uniform methods and are cautiously tested for impurities before being placed on the market.

THE LICENSE

The license is issued by the Secretary of the Treasury to the person or firm for a specific product. Each vaccine, serum, toxin and analogous product is considered separately; general licenses authorizing the manufacture of any and all biologic products are not issued.

The fact that a serum or vaccine is granted a license does not mean that it is a valuable curative or prophylactic agent; in fact, it may have little or no therapeutic value. Thus, firms are licensed to sell normal horse serum or normal goat serum, provided they are honestly labeled and free from impurities. Further, antistreptococcic serum, antityphoid serum and other antiserums of weak and doubtful efficiency and substances in the experimental stage are sometimes licensed. The law provides for the license of biologic products "applicable to the prevention and cure of diseases of man."

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[1] An Act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes. Approved July 1, 1902.

[2] Before the law went into effect tetanus antitoxin was quite feeble. Diphtheria antitoxin must now have at least 250 units per c.c.; no minimal number of units has yet been set for tetanus antitoxin.

It is evidently the province of the medical profession to determine for itself whether a certain substance has therapeutic value or not. The chief concern of the government is to protect the practitioner against sophistications, impurities, faults or mislabeling.

LABORATORY CONTROL

Samples are purchased on the open market by officers of the Public Health and Marine-Hospital Service in all parts of the country and sent to the Hygienic Laboratory in Washington for examination as to potency and purity. Inspectors also obtain samples directly from the manufacturer, which are similarly examined. These examinations are constantly in progress. If any fault is found with a sample the manufacturer is required by the Surgeon-General to withdraw all of that particular product from the market. Antidiphtheric serum, antitetanic serum and vaccine virus are examined for potency and purity; all other serums and vaccines for purity only. All serums are tested to determine whether they contain an excessive amount of preservative.[3]

These examinations require a certain amount of technical proficiency which has been developed as a specialty in the division of pathology and bacteriology of the Hygienic Laboratory. In these examinations special attention is given to Section 2 of the law, which provides "that no person shall falsely label or mark any package or container of any virus, serum, toxin, antitoxin or product aforesaid; nor alter any label or mark on any package or container of any virus, serum, toxin, antitoxin or product aforesaid so as to falsify such label or mark."

LICENSED MANUFACTURERS

During the past year fifteen establishments were reinspected and relicensed, and four additional establishments were inspected and licensed. A list showing the establishments which received licenses and the products for which licenses were granted appeared in The Journal of Sept. 18, 1909, p. 961.

GOVERNMENT GUARANTEE

The government does not guarantee that each vaccine point or each package of antitoxin will produce its full therapeutic effect and be free from all danger. This would be impracticable with the extent and variety of the business in biologic products now carried on in this country and abroad. It would be ideal if the government could guarantee the purity and potency of each package, but to do so would require more than supervision—it would almost mean government ownership.

Certain states and municipalities have found it convenient and economical to produce their own vaccine virus and diphtheria and tetanus antitoxins. The federal government has not gone farther than a legal surveillance, although it might some day be found desirable for the government to make these products for use in the medical services and territorial and insular possessions.

VACCINE VIRUS

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Vaccine virus is the specific principle in the material obtained from the skin eruption of calves[1] having a disease known as vaccinia. The eruption begins as a papule, which develops into a vesicle, and later a pustule. For the purpose of propagating vaccine virus the material is usually taken from the vesicles when fully developed. This may be somewhere between the fifth and the eighth day after the animal has been vaccinated.

The material should be taken only from typical, unbroken vesicles, and is usually obtained by scraping with a curette. This material scraped from the skin eruption is called vaccine "pulp." The fluid which exudes after the pulp is taken is called vaccine "lymph." Both the pulp and the lymph are mixtures containing epithelial cells, serum, blood, leucocytes, products of inflammation, debris, bacteria, etc., in varying proportions.

The use of the pulp for the purpose of vaccination is of comparatively recent origin. Formerly the lymph was used extensively in a dried state on ivory points, constituting the so-called "dry points."

The specific principle of vaccinia is unknown. The organism, whatever it is, exists chiefly in the epidermal lesions, and the pulp, therefore, contains a more potent and concentrated virus than the lymph. Further, the pulp may be purified with glycerin or other substances, whereas the lymph dried on points is not amenable to such treatment. The pulp is mixed with glycerin in the proportion of about 50 to 60 per cent by weight. The glycerin acts as a preservative for the vaccine virus, but is an antiseptic for the frail non-spore-bearing bacteria. The germicidal action of the glycerin depends largely on the time and temperature at which the glycerinated pulp is kept. At ordinary temperatures the germicidal action of glycerin is feeble, and probably depends on its affinity for water.

Other antiseptic substances have been used for the purpose of purifying vaccine virus, viz., phenol (carbolic acid), potassium cyanid, chloroform, chlorbutanol (chloretone), etc., but with less success in practice.

It is evidently impossible to obtain vaccine virus free from the bacteria of the skin. Practically all the vaccine virus on the market contains a certain number of harmless bacteria, such as the hay bacillus, common molds and spores which exist everywhere and are exceedingly difficult to destroy. It is evidently impracticable to use strong antiseptic methods on the skin of the vaccinated animal, for such substances would destroy the viability of the vaccine virus itself. In the propagation of vaccine virus, therefore, cleanliness and asepsis are the watchwords.

The dry points usually contain a larger number of bacteria than the ripened[2] glycerinated virus and are, therefore, less desirable. The new federal regulations forbid interstate traffic in the old-style dry points after Jan. 1, 1910.

In imitation of the old-style dry point, which is a very convenient method of vaccination, manufacturers have placed a small drop of glycerinated virus on ivory or glass points hermetically sealed in paraffin or glass. These are safe and satisfactory. In some instances

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[3] Chloroform or tricresol (0.4 per cent.) are the preservatives commonly used.

[1] For obvious reasons vaccine virus of direct human origin is now little used in the United States.

[2] Glycerinated vaccine virus is said to be "green" before the glycerin has had a chance to be effective. At ice-box temperatures this usually takes thirty days; then the virus is said to be ripe.

gummy substances, such as serum, dextrose, etc., are used to encourage the adhesion of the virus to the point. The glycerin may first be largely extracted from the ripened glycerinated virus by pressing it between blotting papers.

All vaccine virus is tested according to modern bacteriologic methods for streptococci, tetanus spores and other virulent bacteria. These tests include animal inoculations. The tests made by the manufacturer must be satisfactory before the virus is placed on the market and permanent records are required of each lot. Special tests are made to determine the absence of foot-and-mouth or tetanus infection.

The calves are kept in quarantine under observation for seven days before being vaccinated. Only healthy calves free from diseases of the skin are used for this purpose. The calves are killed or otherwise rendered insensible to pain before the virus is removed. The practice of renting calves for the purpose of propagating vaccine virus is no longer countenanced by the federal regulations. The animals must be autopsied as soon as practicable after the removal of the virus in order to determine the presence of lesions indicating other infections than cowpox (vaccinia). The federal regulations further require that the vaccine virus taken from an animal showing indications of complicating infections must be destroyed.

All establishme[illegible] vaccine virus for use in interstate [illegible] to operate under government supervision, which has been described in my article on "The Federal Control of Serums, Vaccines, Etc." (see p. 249, this issue).

Reports received by the Surgeon-General from health officers and others all over the country indicate that since the operation of the law the vaccine virus has been much more satisfactory than before.

WHY VACCINE VIRUS SHOULD BE IN THE PHARMACOPEIA

Vaccine virus was the first and it is the oldest and best specific preventive known. It is a drug in the broadest sense of that term, and as such is handled by every pharmacist. One of the first advantages in admitting vaccine virus into the Pharmacopeia would be to establish for it an official and legal name. This would help avoid much confusion now existing on account of the bacterial vaccines and other substances called "vaccines" used in the prevention and cure of disease. For almost a hundred years vaccination was a specific term limited to the introduction of the virus of vaccinia into the skin for the prevention of smallpox. In recent years the term "vaccination" has been used in a generic sense to include the introduction of many different substances, in many different ways and for many different purposes. To establish a definite and accurate nomenclature is one of the important functions of the Pharmacopeia.

Furthermore, a certain amount of confusion would be avoided and increased definiteness would be given to the various forms in which vaccine virus is marketed by adopting such titles as "virus vaccinicum glycerinatum" and "virus vaccinicum siccum," etc.

To include vaccine virus in the Pharmacopeia would be one of the best means of calling the attention of all pharmacists to the fact that it must be kept in a cool, dry place, etc. Much of the vaccine virus on the market is inert because not properly handled in the trade. Hence, concise, authoritative directions in the Pharmacopeia would have an educational value and would help prevent smallpox and save life.

The objection that vaccine virus is an indefinite substance, the "active principle" of which is not known, is no longer valid, for the Pharmacopeia contains many such substances, including the ferments, against which similar objection holds.

The objection that vaccine virus can not be "assayed" by the average druggist also lacks force when we recall that the potency and purity of vaccine virus in interstate traffic is cared for by the federal government under the law of July 1, 1902, which relieves the pharmacist of this responsibility. Further, other substances, such as serum antidiphthericum, the testing of which requires special training and special laboratories, have been admitted into the Pharmacopeia.

The Pharmacopeia should briefly state the essential requirements of the law above mentioned concerning false labeling or marking of any package or container of vaccine virus; requiring further that each package of vaccine virus must be plainly marked with the proper name of the article, the name, address and license number of the manufacturer, and the date beyond which the contents can not be expected, beyond reasonable doubt, to give specific results. Such information in the hands of every druggist will serve an educational purpose and also help the federal authorities in the rigid enforcement of the law.

The Pharmacopeia should briefly state the method of preparing vaccine virus and specify the difference between glycerinated preparations and dry points and the other forms found on the market. As a precedent, it might be stated that the Belgian Pharmacopeia (third edition, 1906, page 194) has introduced vaccine virus under the title of "vaccinum," and the Swiss Pharmacopeia (fourth edition, 1907, page 512) has introduced vaccine virus as "vaccinum," synonyms: "Kuhpockenimpfstoff," "vaccine," "vaccin jennèrien," "vaccino jenneriano."

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ANTIDIPHTHERITIC SERUM AND ANTIDIPHTHERITIC GLOBULIN SOLUTIONS *

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Until recently the only means we had of giving diphtheria antitoxin was in the whole serum of the horse in which it had originated. The accumulated knowledge obtained in the investigations of a number of workers allowed the development of a practical method for eliminating a portion of the non-antitoxic serum substances while retaining the antitoxin. Because of this, besides the whole serum, we have at present on the American market two globulin preparations containing diphtheria antitoxin. As these are rapidly displacing the whole serum, I will give a brief description of them.

GLOBULIN PREPARATIONS

The Gibson process of purification and concentration is based on the fact that antitoxin is associated with the globulins soluble in saturated sodium chlorid solution. This purification appeared to be considerable, as in the average normal horse serum the proteins are distributed as follows: albumin, 40 per cent.; globulin soluble in saturated sodium chlorid solution, 42 per cent.; globulin insoluble in saturated sodium chlorid solution, 18 per cent. Thus it would appear as though about 58 per cent. of non-antitoxic protein was eliminated.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Investigation carried on by Banzhaf and Gibson on the distribution of the proteins in immunized horses brought out the fact that, while the total proteins of the horses were increased during the progress of immunization, the so-called non-antitoxic proteins, the albumins and globulins insoluble in saturated sodium chlorid were greatly diminished. The globulins carrying the antitoxins were greatly increased. This work showed that in the average antitoxic horse serum the proteins were distributed as follows: albumin, 12 per cent.; globulin carrying the antitoxin, 78 per cent.; globulin insoluble in saturated sodium chlorid, 10 per cent. This brought out the fact that the Gibson process was eliminating in some preparations only about 22 per cent. of the total proteins.

About a year ago Banzhaf experimented with antitoxic serums heated at different temperatures and periods of time, and found changes taking place in the proteins which allowed further purification of antitoxin; thus, if antitoxic serums of 600 units per cubic centimeter containing albumin 12 per cent., globulin carrying the antitoxin 78 per cent., globulin non-antitoxic 10 per cent., were heated for from twelve to fifteen hours at a temperature of 57 C., a rearrangement of the proteins would take place, so that albumin would now be 9 per cent., globulin and all the antitoxin 50 per cent., and globulin non-antitoxic 41 per cent., showing an elimination of 50 per cent. non-antitoxic proteins. The loss of antitoxin on heating for this period of time and temperature is from 5 to 7 per cent. The units per gram of coagulable protein for this serum would be 9,446. With the Gibson process using the same serum, we have 11,456 units per gram protein, while with the heating method we have 17,060 units per gram.

For routine work at the Research Laboratories we do not try to concentrate more than to give an antitoxic potency of five or six times the original serum, as we do not want the total solids to be more than 16 to 18 per cent. The treatment of the antitoxic serum or of the globulin solution to fractional precipitation with different concentrations of ammonium sulphate allows of obtaining globulin preparations of somewhat greater degrees of antitoxic potency for each gram of protein. This method is often employed to obtain a fair preparation from a serum of low potency or, again, to obtain a very high potency serum.

The physician should keep in mind that the producer can concentrate the antitoxin either by eliminating the non-antitoxic proteids of the serum or by lessening the percentage of water holding the proteids in solution. The latter expedient, if carried too far, is a detriment.

ANTIDIPHTHERITIC HORSE SERUM

The blood serum from different horses varies not only in antitoxic potency, but also in its liability to produce disagreeable after-effects. Although theoretically it would be possible to test out the bleedings from each horse and to exclude that producing most serum effects, yet practically this would be so expensive as to be prohibitive.

It has been found that long standing and heating to 57 C. have some effect in lessening the after-effects. The improvement is so slight that most American producers have used unheated serum and have not stored their serum for this purpose.

With the present U. S. government insuring the unit strength and sterility of the serum, it is safe to say that the antidiphtheritic serum supplied by the different producers is practically identical, if of equal antitoxic strength. The elegance and convenience of the container is the main difference. The different lots of serum of the same manufacturer will vary in liability to produce rashes, and this, together with the idiosyncrasy of the patient, causes some physicians to approve and others to condemn the preparations of the same manufacturers.

COMPARISON OF GLOBULIN AND WHOLE SERUMS

The effects of the globulin preparations have to be considered from two standpoints: Have they the curative substances of the whole serum, and, if so, have they any advantages except in concentration over the whole serum? I have most carefully watched the results following the injection of the whole serum and of the Gibson and the Banzhaf modifications. These tests were carried out with preparations made from portions of the same lot of serum. The rashes and after-effects were undoubtedly much less after the Gibson injections than after the whole serum and somewhat less after the injections of the Banzhaf modification than after that of Gibson. Curiously enough, only certain types of rashes are eliminated. The urticarial reactions still frequently follow.

As is well known, certain French and Viennese investigators have asserted that the curative value of antidiphtheritic serum was only partly in the antitoxin, and even that the antitoxin was the least important part. These assertions were based partly on supposed clinical results, but chiefly on the results of animal experiments in which guinea-pigs with multiple fatal doses of living diphtheria bacilli were treated with serums of low and high potency. It appeared from their results that the amount of serum rather than of antitoxin units was of saving value.

These experiments were repeated by us in a very extensive series of tests and later there was a second independent test under Ehrlich's direction. The results were exactly the reverse of those earlier reported. The serums used in Vienna were fortunately obtained by Ehrlich, and he was astonished to find that they had been exceedingly inaccurately tested. When the serums were arranged as to their true unit value the results obtained by Krams were found to reverse what he supposed and really to strengthen the conclusion that the antitoxin was practically the only curative substance in serum. These results probably apply equally to tetanus antitoxin.

Professor Calmette, when over here last September, promised me to test a number of French serums as well as a number of American samples. He stated that if he found any that proved to have other important curative substances than antitoxin he would send them to me for control testing. He has not as yet sent any.

I am sure I am safe in asserting that so far as animal tests can be depended on (and I believe they can be), the globulin preparations contain all the important curative substances of the whole antidiphtheritic serum.

THE ACCURACY OF STATEMENT IN THE TRADE CIRCULARS

I have looked over the circulars accompanying the preparations sent out by different American producers. There are extremely few statements to which exception can be taken. Two might be mentioned. One is that the globulin solution contains nothing but antitoxic globulins. We do not know what antitoxin is, but we believe that the globulin solution still contains much non-antitoxic substance, and we certainly hope to remove still more of the non-antitoxic globulins. The other is the claim that the special precipitating agent used gives a different final result. It seems to me that it is very creditable to the honesty and intelligence of the producers that they are so fair and sensible in their claims for their special preparations.

315 West Seventy-sixth Street.

THE COMMERCIAL PREPARATIONS OF TETANUS ANTITOXIN *

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Antitetanic serum is the serum of certain animals, usually that of horses, immunized to the toxins of the tetanus bacillus. It is marketed in both the liquid and dry forms. Some manufacturers prepare an antitetanic globulin; this contains a solution of the globulins of the blood, which are soluble in sodium chlorid solution, together with the antitoxin.

All tetanus antitoxin sold in interstate commerce in the United States must conform to the official standard adopted by the United States Public Health and Marine-Hospital Service, which was officially promulgated Oct. 25, 1907.[1] This unit may be defined as follows: "The immunity unit for measuring the strength of tetanus antitoxin shall be ten times the least quantity of antitetanic serum necessary to save the life of a 350-gram guinea-pig for ninety-six hours against the official test dose of a standard toxin furnished by the Hygienic Laboratory of the United States Public Health and Marine Hospital Service."

Besides the American unit above alluded to, there are three other units for measuring the strength of tetanus antitoxin. They are (1) the German method described by Behring (2), the French method of Roux, and (3) the Italian method after Tizzoni.

The European methods are admitted, even by their users, to be unsatisfactory and, in the main, not accurate; in addition, they are complicated and difficult to use. The American unit commends itself for its simplicity, directness, and accuracy. I am informed that it may be adopted officially by the Belgian government.

There is at the present time no standard for serums for veterinary use. We examined, in the Hygienic Laboratory, several different makes of veterinary tetanus antitoxin and found most of them to contain less than 25 units per cubic centimeter, while the minimum strength of the serums for human use now on the market—over which there is federal control—is at least 150 units per cubic centimeter, and much of it considerably stronger.

The need of uniformity in measuring the strength of tetanus antitoxin has long been felt and is very evident from the accompanying table,[2] from which it will be seen that before the promulgation of the American standard the tetanus antitoxin on the market varied extravagantly in the unit strength claimed.

As will be seen from the table, most of the foreign serums were far below the American in potency.

TABLE SHOWING THE DIFFERENCES IN THE METHODS OF TESTING TETANUS ANTITOXIN BEFORE THE ADOPTION OF THE AMERICAN UNIT

Name of Manufacturer.	Labeled.	Contents c.c.	Units claimed according to special methods of standardization, per c.c.	Units according to the American standard, per c.c.
New York department of health, Albany (submitted by Dr. H. D. Pease for comparison)...........	One immunizing dose (No. 2929 F.)		0.5	434
New York City department of health (submitted by Dr. W. H. Park for comparison)...........	....	..	700	166
H. K. Mulford Co. (bought on open market)......	1,000,000 immunizing units (No. 2121).	10	100,000	77
Farbenfabrik vorm. Meister Lucius & Bruning, Hoechst, a/M (submitted for comparative tests).	Tetanus Antitoxin, 5 fach. Normal, Prüfungs dose=1/500. *		....	333
H. K. Mulford Co. (No. 9971 submitted for tests).	60,000,000 units.	10	6,000,000	90
Parke, Davis & Co...........................	....	..	60.000	700
New York department of health, Albany (submitted by Dr. H. D. Pease for comparison)..........	....	..	.75	769
Pasteur Institute, Paris (10 c.c. fluid)..........	[Unit value not stated.]	10	Not stated.	40
Pasteur Institute, Paris.......................	[Unit value not stated.]	10	Not stated.	40
Tizzoni (No. 2912, Dry).......................	[Unit value not stated.]	..	Not stated.	83.3†
Pasteur Institute(No. II, 7)....................	[Unit value not stated.]	10	Not stated.	66
Institut Bactériologique de Lyon et du Sud-Est...	[Unit value not stated.]	10	Not stated	‡

* Dissolved in 26 c.c.
† This equals 833 units per gram of the dry serum.
‡ Less than 50.

Tetanus antitoxin is used both as a prophylactic and as a curative agent in tetanus. The dried and powdered serum has been used as a dusting-powder for wounds. Used as a prophylactic, the dose is 1,500 units; as a curative it should be given in doses of 3,000 to 20,000 units, repeated during the course of the illness.

Tetanus antitoxin is made in the following laboratories: Parke, Davis & Co., Detroit, Mich. (license No. 1); H. K. Mulford Co., Philadelphia, Pa. (license No. 2); Lederle Antitoxin Laboratories, New York, N. Y. (license No. 17); New York State Department of Health, Albany, N. Y., and the Department of Health, city of New York.

The liquid serum is marketed either in syringes ready for use or in glass vials. Each syringe of tetanus antitoxin made by the American producers contains from 1,500 to 5,000 units without regard to the volume of the serum; the unit value per cubic centimeter varies from 150 to 500 or 600 units.

Many of the foreign serums, as is the case with most of the foreign diphtheria antitoxins, are labeled to contain so many cubic centimeters and do not give the number of units in the package or per cubic centimeter, and are almost uniformly weaker in antitoxic strength than the serums produced in the United States.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Rosenau, M. J., and Anderson, John F.: The Standardization of Tetanus Antitoxin (an American Unit Established under Authority of the Act of July 1, 1902), Bull. 43, Hyg. Lab., U. S. P. H. and M.-H. S., Washington, 1908.

[2] Bull. 43, Hyg. Lab., U. S. P. H. and M.-H. S., p. 11.

The affinity of the nerves for the toxin and its subsequent binding by them explains why tetanus antitoxin is often of so little value after the symptoms have developed. The antitoxin can, however, neutralize any new toxin that may be formed in cases in which the focus has not been removed and should, for this reason, invariably be used in all cases of tetanus.

Tetanus antitoxin at the present time is in the Belgian, French, and Swiss pharmacopeias. Both the dry and the liquid preparations are recognized by the French Pharmacopeia.

As diphtheria antitoxin is in the United States Pharmacopeia, and as there is now an American standard for determining the strength of tetanus antitoxin, this product should by all means be included in the next revision of the United States Pharmacopeia. Its great value as a prophylactic alone entitles it to admission without regard to its value in the treatment of developed tetanus. I should like to see this Section pass a resolution favoring its admission to the Pharmacopeia.

It may not be amiss to add a few words in regard to the federal control of therapeutic serums, especially of tetanus antitoxin.

Before the adoption of the American unit for tetanus antitoxin by the United States Public Health and Marine-Hospital Service there were as many different units or standards as there were producers of tetanus antitoxin. The physician, in using this serum, could have no idea of the number of antitoxic units the serum contained, as one maker's product was labeled "to contain 6,000,000 units per c.c." and another, probably just as potent, 0.75 per c.c., when in truth, according to the official standard, the first had only 90 units per c.c. and the latter about 770 units per c.c..

The great good that has come from the federal control of therapeutic serums may be summarized as follows:

1. The physician can be assured that every package of tetanus antitoxin now contains at least the number of units claimed.
2. All serums are now examined for, and are required to be free from, bacterial or toxic contamination.
3. The amount of preservative contained in the serums is not excessive.
4. There has been a progressive increase in the potency of tetanus antitoxin without a corresponding increase in cost.
5. A uniform standard having been established, definite amounts of tetanus antitoxin can be used so that data will gradually be collected as to the amount of serum necessary to be used for immunizing and curative purposes.

ABSTRACT OF DISCUSSION

Dr. W. H. Hutchings, Detroit: I feel that the valuable work of Dr. Anderson and Dr. Rosenau in formulating this standard unit of tetanus antitoxin should not pass here without some commendation. We have now for the first time definite knowledge of how much antitoxin we are using. Previously we measured the amount given in cubic centimeters with no knowledge—except the word of the manufacturer—of how strong it really was. The value of such information will be appreciated when we see that the serum of one manufacturer, who claimed 6,000,000 units per c.c., contained according to the present standard, only 90; while another serum, which was stated to contain 0.75 of a unit, in reality, contained 769. As the result of the adoption of this standard we can now use the serum of any American manufacturer and know just how much we are giving. I would suggest that in future reports of our cases we state the number of units employed rather than the number of cubic centimeters. In this way we will soon have valuable data for comparison.

A large majority of manufacturers use either phenol or tricresol for preservation in various serums. The amount is usually 0.04 per cent. Consequently every time we give 10 c.c. of antitetanic serum we give at the same time a curative dose of phenol as recommended by Baccelli. Possibly some at least of the reported cures of developed tetanus are due more to the carbolic acid than to the serum.

Dr. E. R. Larned, Detroit: If Dr. Anderson said that the antitetanic unit represented ten times the amount of serum necessary to neutralize the killing dose of tetanus toxin when injected into a guinea-pig of standard weight, 350 drams, then I have misunderstood the technical definition of antitetanic unit and antidiphtheritic unit. My conception is that the antidiphtheric unit represents one hundred times the amount of serum necessary to save the life of a guinea-pig of standard weight (250 drams), when injected into the pig, together with minimum lethal dose of diphtheria toxin; that an antitetanic unit represents one thousand times the amount of serum required to save the life of a guinea-pig, of standard weight (350 drams), when injected at the same time with the M. L. D., of tetanus toxin. I understand that the government authorities have required that the standard dose of tetanus toxin to be administered to pigs in standardizing the serum into units is ten times the M. L. D., of toxin and that one hundred times the amount of serum necessary to neutralize the standard test dose of toxin (ten times the M. L. D.), of the same toxin represents the unit; or in other words, the *antitetanic unit is one thousand times the amount of antitetanic serum required to save the life of a guinea-pig of standard weight (350 drams) when the serum and the toxin are injected at the same time.*

One point that I think served to cloud the solution of the question of antitetanic serum's efficacy in the hands of the every-day practitioner, is the fact that the ordinary practicing physician knows nothing whatever about the necessity of the very early and frequent administration of sufficient quantities of the serum. My experience, which has been large in this particular regard, shows me that physicians are condemning antitetanic serum as a curative agent, because they wait too long, use too small quantities, and give up too quickly. A coal miner in Springfield, Ill., who had received an accidental gunshot wound, developed tetanus, his condition was pronounced hopeless and he was given up by the attending physician. Under the total administration of 198,000 units of serum, he recovered. The opinion in general seems to be that antitetanic serum is of no value for curative purposes. Professor Ehrlich has told me that antitetanic serum, in his opinion, was just as specific for tetanus as antidiphtheric serum for diphtheria, provided it was used early and often enough and in sufficiently large quantities.

Dr. W. H. Park, New York City: During the past few years, and especially the last year, we have found in New York that, when a large intravenous dose is given within a few hours of the onset of the symptoms, the effect is marked. More than 50 per cent. of the patients I have seen thus treated have recovered, some of whom I feel perfectly sure would have died without the serum. Ordinarily the surgeon waits a number of hours to make up his mind and then sends for the serum. He then frequently waits several hours longer until it arrives. At the first sign of actual tetanus an intravenous injection of ten to twenty thousand units should be given, to be followed every twelve hours by further injections. If this is done, we will certainly see some good results. The later injections can be given subcutaneously if there is difficulty in giving it intravenously.

Dr. Joseph McFarland, Philadelphia: How we are to arrive at the correct dosage of tetanus antitoxin I am unable to imagine. I would like to say a word about some observations made on tetanus in thirty-five horses. Sometimes a horse shows symptoms of tetanus, slowly increasing, and after a prolonged period recovers without any treatment at all. At other times the horse develops symptoms, becomes rapidly worse, and dies in a few days. In the former cases recovery takes place without antitoxin treatment, in the latter, doses of antitoxic serum up to a liter at a time produce no improvement.

Dr. W. H. Hutchings, Detroit: In connection with a comparative experimental study of the various methods of treating tetanus, I have been conducting a series of experiments to determine the curative value of serum when used alone. For this purpose, I have used sheep with long tails. A splinter of wood infected with toxin-free spores was placed in a pocket at the tip of the tail. With the first appearance of symptoms of tetanus, six to seven days later, the tails were amputated 20 centimeters above the point of inoculation. At this time 2 c.c. of blood from the jugular vein of the infected sheep contained enough toxin to kill a 350 gram guinea-pig when injected subcutaneously. Then 4,500 units of antitetanic serum were injected intravenously as mentioned by Dr. Park. Twenty-four hours later, 2 c.c. of this sheep's blood did not contain a trace of toxin. Nevertheless, despite the daily injection of 4,500 units of serum all but one of the sheep died of tetanus. The symptoms were not influenced to the slightest degree by the serum. This experimental evidence goes to confirm the belief of many authors, based on clinical observations, that after the symptoms of tetanus have become manifest, antitetanic serum is valueless as a curative agent, no matter whether it is used subcutaneously, intravenously, intraspinally or intraneurally. Antitoxin will neutralize the toxin present in the body which has not combined with the nerve cells, but it will not break up this combination, the results of which kill most of our patients.

Dr. J. F. Anderson, Washington, D. C.: The tetanus unit may be defined as ten times the least quantity of antitetanic serum necessary to protect the life of a 350 gram guinea-pig against the test dose of a standard toxin furnished by the Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

I think the pathology of the disease shows us how futile is the use of tetanus antitoxin after the symptoms have fully developed. The toxin, being bound by the nerve substance, cannot be reached by the antitoxin in the circulation, though the latter of course can neutralize any new toxin that may be formed if the original focus of infection has not been removed. I think it should be used, however, in all cases of developed tetanus, for frequently the surgical procedure has not been thorough.

I think Dr. Park's point that the serum should be administered intravenously is well taken and exceedingly important. We know that when a dose of antitoxin is given subcutaneously the maximum absorption is not attained till twenty-four to forty-eight hours after the injection, and much valuable time would be lost if the serum were not administered intravenously.

Dr. Joseph McFarland, Philadelphia: The large doses to which I referred were given subcutaneously, not intravenously.

VACCINE THERAPY: GENERAL PRINCIPLES *

MARK W. RICHARDSON, M.D.
BOSTON

In studying the question of specific therapeutics it is important to bear in mind, in the first place, the fundamental distinction between passive and active immunity. In the utilization of passive immunity in the cure of disease, aid to the individual comes from without. Moreover, the mediation of a second animal is required, and the protection given is fleeting, though its immediate power may be great. By the inoculation of lower animals with animal or vegetable cells or their toxins, a large variety of immune serums has been produced. While most of these have been found to be highly potent in protection against infection, especially in animal experiment, their curative power in the presence of declared disease has been distinctly limited. Diphtheria still stands out as the one disease in which passive immunity has proved its worth emphatically, though results almost as remarkable have been seen recently in serum treatment of cerebrospinal meningitis. Less degrees of success have been noted in dysentery, cholera, typhoid fever, tetanus, snake-poisoning and other infections and intoxications.

In the use of vaccines, on the other hand, we aim at the production of an active immunity. We do not bring to the sick individual immune substances already manufactured; we endeavor to stimulate him to produce for himself a larger amount of these immune substances. To do this we introduce into his body more morbific material in order that he may, by manufacturing an increased amount of the protective bodies, inhibit the growth of the invading organisms and cut short his disease.

Success in this method of treatment presupposes that the patient is not already completely overwhelmed with poison. He must respond to the added stimulation. Furthermore, if this procedure is to bring about, as it should, increased bacterial destruction with the setting free thereby of an increased amount of endotoxin, this destruction must not be too rapid or excessive, lest efforts to cure do harm through hyperintoxication.

Bacterial immunity is brought about through the action of a great variety of different, though related, immune substances, and as a result of inoculation with vaccines there may be formed antitoxins, antiendotoxins, lysins, agglutinins, precipitins, opsonins, and other allied products, the relative importance and proportion of each varying in different infections.

By bacterial vaccine is generally meant a culture of the special organism sterilized by heat, or otherwise, and suspended in known proportions in normal salt solution.

Living organisms, attenuated either in number or virulence, have been used in a few instances. Theoretical considerations would indicate that the use of living bacteria would be followed by results more favorable than those seen after inoculation of the dead organisms, but it is manifest that such use would be in many instances accompanied by great danger. The greater efficiency of living organisms, however, should be constantly borne in mind, in order that, in the process of sterilization, the bacteria may be changed in their characteristics as little as possible.

In this connection may be mentioned the work of Strong, in the Philippines, who found that by the inoculation of plague bacilli of attenuated virulence, he could produce in human beings a much stronger immunity than that ever produced by dead bacilli. Furthermore, in one instance at least, living typhoid bacilli have been used by Italian observers in the treatment of typhoid fever, with what are said to have been excellent results. *Finally, living bacilli* have been used by Webb, Williams, and Barber[1] in the treatment of tuberculosis. In this treatment the bacilli are so diluted in number that inoculations are begun with a single bacillus, the dose being gradually increased thereafter.

As a general principle, it is better, if possible, to use *autogenous vaccines*. At any rate, if good results are not obtained with stock vaccines, recourse to the autogenous variety should be had.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Webb, Williams and Barber: Jour. Med. Research, January, 1909.

As to dosage, no definite rules can be laid down. It is advisable to begin well below what is considered the ordinary dose and gradually to increase. In this way, severe reactions due to individual idiosyncrasy will be avoided. The interval between doses also will vary in different infections. Generally speaking, at least two or three days should be allowed between inoculations.

As to the value of the opsonic index, as a guide to treatment with vaccines, the opinion gains ground steadily that this procedure is so time consuming and unreliable as not to justify its use, in routine practice at least.

TYPHOID BACILLUS

As a result of specific inoculation of large numbers of troops in the British Army, the results, as reported recently by Leishman,[2] show that of 5,473 soldiers inoculated, only 21 were subsequently infected, with 2 deaths, while of 6,610 non-inoculated in the same regiment 187 had typhoid and 26 died.

The experience of the Germans with antityphoid inoculation has not been so extensive, but in the main it confirms the results seen in England.[3] Of 424 typhoid patients, 324 had not been inoculated. In the uninoculated the mortality was 11.9 per cent.; in the inoculated, 4 per cent. In the inoculated the disease was milder and there were fewer complications and relapses.

As a result of these apparent successes with antityphoid inoculations, it has been proposed recently to introduce the same procedure into the army of the United States. Its use in civil life will not become general, doubtless, for a number of years. It is not unreasonable to suppose, however, that this inoculation should recommend itself in large institutions, especially where many of the personnel—physicians, nurses, ward tenders, laundry women, etc.—are not infrequently exposed to typhoid infection. Having demonstrated its usefulness in such situations, its introduction, generally, should be only a question of time, especially in communities threatened with or affected by typhoid epidemics.

In serum treatment of typhoid fever, no one has approached, in experience or success, Chantemesse[4] in Paris. With his colleagues he has treated 1,000 cases, with a death-rate of 4.3 per cent. Of 5,621 patients who were given routine treatment during the same period, 17 per cent. died. Of patients who were given serum treatment before the seventh day, Chantemesse lost not a single one. The nature of Chantemesse's serum is difficult to understand. He speaks of it as antitoxic and as produced by inoculation of horses with a true typhoid toxin. It does not, however, act directly on the toxin, as does the diphtheria antitoxin, but in some way indirectly. It stimulates the spleen, bone marrow and other lymphatic apparatus to increased opsonin production. The sicker the individual the smaller must be the dose, lest too many bacilli be destroyed at once. There would seem to be, therefore, a strong bactericidal element in the serum. The serum treatment is combined with the cold-bath treatment, and calcium chlorid is given as a routine measure to prevent hemorrhage. Chantemesse's results have been confirmed to a certain extent by the Germans, and von Leyden[5] reports three cases treated with an antitoxic serum prepared by Meyer and Bergell.[6] These cases were all of remarkably short duration, having normal temperatures on the sixteenth, seventeenth and nineteenth days. The serum is said to be of only moderate strength and to be both bacteriolytic and antitoxic. This serum, as produced by Meyer and Bergell, has been studied recently in animal experiment by W. Hoffman.[7] Hoffman's final conclusion was that the protective power of this serum was not sufficient to justify its use in human cases.

I have already published results seen in the treatment of 132 cases of typhoid fever with specific typhoid products, serum, bouillon filtrates, and the non-toxic residue of the typhoid bacillus, as prepared by Professor Vaughan of Ann Arbor.[8] The results were largely negative, with one exception. By continued inoculation during convalescence of the non-toxic residue, the occurrence of relapses was cut down apparently from 22 to 5 per cent.

More recently (1908) I have had experience with twenty-eight cases of typhoid fever treated with typhoid vaccines. Twenty-five of the patients were treated first in the original attack, and three for the first time during relapses. In two cases only were autogenous vaccines used. The dose varied from 10,000,000 to 100,000,000. The interval between doses averaged about three days. The results of the treatment were not especially striking.

As regards relapses, however, here again the effect of inoculation seemed to be favorable. In twenty-five cases inoculated, there was after inoculation but a single relapse. This was very atypical and lasted six days.

Of 77 untreated patients, 10 suffered typical relapses. I am, therefore, firmly convinced that whatever effect the vaccines may have on the original disease, there can be little doubt that the percentage of relapses can be much reduced by bacterial inoculation.

More recently series of cases of typhoid fever treated with vaccines have been reported by Watters and Eaton[9] (thirty cases) and Smallman[10] (thirty-six cases). These series, though small, tend to confirm the impression that vaccines are of value. At any rate, no harmful results were noted.

The possible use of vaccines in typhoid fever, for the cure of the typhoid-carrier has been suggested. Such a case is mentioned by Irwin and Houston.[11] In this patient bacilli were found in the urine seven years after the original disease. After three months' treatment with inoculation the bacilli disappeared and did not return.

MICROCOCCUS NEOFORMANS

The use of neoformans vaccines in the treatment of malignant tumors has been advocated, especially by Wright. It is said that not only do the tumors decrease temporarily at least in size, but that there is much alleviation of pain. As to the antiserum obtained by the inoculation of animals with this organism by Doyen, there seems to be no basis in fact for the claims made for this remedy. The subject was thoroughly investigated by Payne and Morgan.[12]

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[2] Leishman: Jour. Roy. Army Med. Corps, February, 1909.

[3] Morgenroth: In Kolle and Wassermann's Handbuch der pathogenen Mikroorganismen, Supplementary volume, No. 1, p. 234.

[4] Chantemesse: Hyg. gén. et appliq., 1907, p. 577.

[5] Von Leyden: Med. Klin., Aug. 4, 1907.

[6] Meyer and Bergell: Berl. klin. Wchnschr., May 6, 1907

[7] Hoffman: Deutsch. med. Wchnschr., April 1, 1909.

[8] Richardson, M. W.: Boston Med. and Surg. Jour., Oct. 3, 1907. This study was carried on at the Massachusetts General Hospital through the courtesy of the visiting physicians.

[9] Watters and Eaton: Med. Rec., Jan. 16, 1909.

[10] Smallman: Jour. Roy. Army Med. Corps, February, 1909.

[11] Irwin and Houston: Lancet, London, Jan. 30, 1909.

[12] Payne and Morgan: Med.-Chir. Tr., London, 1906, p. 7.

BACILLUS COLI COMMUNIS

There can be little doubt that infections of the urinary tract due to the colon bacillus are favorably affected by vaccine treatment. The subjective improvement is oftentimes striking, and pain and frequency of micturition are quickly relieved.

The character of the urine, however, changes but slowly and complete elimination of the bacteria is rare.

As to the use of these vaccines in other conditions, mention may be made of inoculation by Wright and Reed, in two cases, of gall-bladder fistulas after operation for gall-stones. Similar cases have been reported by Turton.[13] Turton mentions also two cases of appendicitis, in which pure cultures of colon bacillus were found, which seemed to do well under colon vaccines.

In all of these discussions of vaccine treatment it is, of course, important to bear in mind that a fever, clinically identical with what is known as typhoid fever, may be due either to the colon bacillus, as pointed out by Coleman and Hastings,[14] or to any of the intermediate organisms between the typhoid and the colon; that is to say, paratyphoid and paracolon varieties.

Any attempt at specific treatment of such intermediate types must, of course, be made with vaccines prepared from the appropriate germ.

The use of a specific antiserum in infection by the *Bacillus coli communis* is mentioned in an article by Makins.[15] This serum was of the polyvalent variety and was used in twenty-five cases of general peritonitis. Of the twenty-five patients nine, or 36 per cent., recovered. All the cases were of great severity. As a result of the use of the serum there was a drop in the pulse and temperature, the patient felt better, and there seemed to be a tendency to form peritoneal adhesions. In cases of chronic colon bacilluria the serum seemed to be of no value.

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PRELIMINARY REPORT OF INVESTIGATIONS OF SERUMS AND VACCINES FOR STREPTOCOCCUS, STAPHYLOCOCCUS, AND PNEUMOCOCCUS INFECTIONS *

L. HEKTOEN, M.D., G. H. WEAVER, M.D.,
AND
R. TUNNICLIFF, M.D.
CHICAGO

At the request of the Chairman of the Section we undertook a study of the various antistreptococcus and antipneumococcus serums and of streptococcus, staphylococcus and pneumococcus vaccines found on the market, with the purpose of reporting our results in the symposium on the present status of serum and vaccine therapy. The labor involved in an attempt to arrive at some scientific estimate of the real value of these various agents has proved very great, and we are prepared to report our results in a preliminary way only, reserving a fuller report until some further investigations now in progress are completed.

BACTERIAL VACCINES

The antigenic properties of the so-called vaccines were tested by injections in rabbits with subsequent opsonin determinations. Distinct antigenic properties were possessed by all the streptococcus and staphylococcus vaccines tested. The pneumococcus vaccines were inert when injected into rabbits so far as indicated by any change in the opsonic index.

ANTISTREPTOCOCCUS SERUMS

Streptococcus opsonins could not be demonstrated in any of the serums tested, and activation by fresh serums was not accomplished to any significant degree. When they were injected into rabbits, increase in streptococcus opsonins could not be demonstrated in the serums of the animals in any notable degree, except in some instances.

Attempts to obtain protective and curative effects from the injection of antistreptococcus serums in rabbits, guinea-pigs and in a more limited scale in mice met failure. The serums often seemed to reduce the natural resistance and to hasten death.

ANTIPNEUMOCOCCUS SERUMS

In the antipneumococcus serums it was impossible to demonstrate antibodies for pneumococci by any method employed.

It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests.

1743 W. Harrison street.

ABSTRACT OF DISCUSSION

DR. D. H. BERGEY, Philadelphia: The last statements in the paper interested me very much because they record results similar to those I obtained some years ago. That is, experimental animals to which the antistreptococcus serum has been administered die more quickly than those not so treated. I was unable to find any explanation at the time, though I suspected it might be due to the antiseptic. Can Dr. Weaver throw any light on this occurrence, that is as to its cause? Can it be due to the preservative used in the serum?

DR. W. H. PARK, New York City: I think that probably most of you have read of the use in Vienna of Moser's antistreptococcus serum in scarlet fever. From 10 to 200 c.c. of serum are injected in a single dose in children suffering from malignant scarlet fever. Two years ago I had the privilege of going over the records covering five years of treatment. In about one-half of these cases improvement rapidly followed the injections and in none was there apparently any harm except severe rashes. I have recently prepared a similar serum but have hesitated to use it in such large doses. In Vienna the serum is used in only about 5 per cent. of all cases.

DR. G. H. WEAVER, Chicago: In regard to animals to which the antistreptococcus serum has been administered dying more quickly than those not so treated, I do not think the preservative was the essential factor, for we had similar occurrences when the serums used contained no antiseptic. Of course, as Dr. Park has intimated, the serum of normal horses is toxic in different degrees for different animals and we know that horse serum is toxic to man to a comparatively slight degree, even when given in large quantities. Whether or not the antistreptococcus serum leads to the rapid disintegration of streptococci and the liberation of toxin, in overwhelming dose, especially in smaller animals, I do not think we are in a position to state.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the Memorial Institute for Infectious Diseases.

[13] Turton: Internat. Clin., Philadelphia, 1908, series 2, xviii, 23-47.

[14] Coleman and Hastings: Am. Jour. Med. Sc., February, 1909.

[15] Makins: Tr. Clin. Soc., London, 1907, p. 146.

STATUS OF THERAPY BY ANTIGONOCOCCUS SERUM, GONOCOCCUS BACTERIN AND PYOCYANEUS BACTERIN *

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PHILADELPHIA

The question has arisen in the minds of many of the medical profession, not only throughout the United States, but abroad as well, first, whether or not immunization by bacterins (bacterial vaccines), including tuberculin and serums, is actually valuable and practical for the general practitioner, or whether this method of therapeusis is still a matter of empiricism; second, whether these therapeutic agents in the pharmaceutical market to-day are safe and trustworthy, or whether they are, like so many proprietary preparations of modern medicine, either wholly or partly inert, or, on the other hand, dangerously potent.

ANTIGONOCOCCUS SERUM AND GONOCOCCUS BACTERIN

As to the value of treatment of gonorrheal infections by one or both of these agents, depending on the particular affection in a given case, there can be no doubt. The experiences of Rogers and Torrey, Swinburne, Perez-Miro, Herbst, Dunavant and others demonstrate the value of antitoxic treatment by the employment of the serums of rams properly immunized. It would seem, however, that the method of passive immunization is beneficial more particularly in the chronic complications of gonorrhea involving the serous cavities, especially the joints, and my own experience, though not nearly so extensive, accords more closely with that of Uhle and Mackinney, who are unable to note any benefit in the treatment of acute gonorrheal infections by inoculation with antigonococcus serum. Questionable results have been obtained in certain subacute complications of the disease, but there has never occurred any noteworthy or definite improvement by recourse to this method of therapy in the chronic stages and sequels of gonorrhea involving the genito-urinary tract. Indisputable, however, seems to be the evidence that chronic gonorrheal arthritis is favorably influenced by serotherapy.

On the other hand, Wright, Pardoe, Douglass, Freeman, Wells, Fleming, Cole, Meakins, Irons, Hamilton and Cooke have apparently justified the belief that by active immunization (injection of bacterin or gonococcus vaccine) a much larger sphere of gonorrheal affections is afforded for treatment. I myself have observed almost incredible results in gonorrheal arthritis by bacterin therapy. Moreover, the usefulness of bacterins in acute conditions, even in blennorrhea, according to Cole and Meakins—although I have had no experience in this respect—gives it, in my opinion, superiority over serum as a therapeutic measure.

It is probable that, ultimately, various affections will demand different therapeutic agents for the facilitation of their respective cures; that is, diseases involving the mucous membrane may be influenced best by bacterin therapy, while complications affecting the serous membranes may respond more readily to serotherapy. Certainly, a certain amount of empiricism still shrouds the rationale of these two therapeutic agents, but their value in properly selected cases I think is undoubted. The golden rule should be never to undertake the treatment by immunization in any acute, diffused infection, associated with septicemia, sapremia or marked toxemia. Those conditions in which it is particularly indicated *are the subacute and chronic localized superficial manifestations of the disease.* Sufficient experience perhaps has not yet been adduced to prove which of the two measures is the more valuable, but, *for the present at least*, the consensus of opinion favors bacterin therapy.

A very important fact to be borne in mind in the practice of medicine is never to discard or to disregard an old-established measure of proved worth for an insufficiently tried, new idea, although attractive and possibly of equal value, for, by the association of the two, the cure will be facilitated. This is especially true not only in gonorrhea, but in every infection; hence, local urethral and prostatic and general treatment, when indicated, should be coupled with the method by immunization, and such treatment will never fail of its reward.

An essential point to be remembered in immunization, whether by bacterin or serum, is progression in dosage, beginning with minimum doses and steadily increasing until tolerance is established. Repeated small doses given at long, regular intervals, are likely to produce a condition of anaphylaxis and hypersusceptibility. Intolerance can also be produced by too frequent inoculations of too large doses. I believe this is the cause of many failures in active immunization or opsonotherapy. On the other hand, animal experimentation seems to prove that no real lasting immunity against subsequent infection can be expected from the inoculation of bacterin or serum, and that permanent immunization must be accomplished solely by living organisms.

Although, occasionally, in some cases, I still make it a practice to determine the opsonic index, not oftener than weekly, I am steadily becoming more convinced that it is unnecessary as a guide for the administration of opsonotherapy, and, in fact, not infrequently conducive to erroneous conclusions. Consequently, I am governed almost entirely by the clinical symptomatology in both bacterin and serum immunization. This is more easily stated than executed, and I believe no little experience is necessary for its proper performance. An almost uncontrollable desire to "push the immunization," carelessness and improper attention to trivial symptoms, as headache, malaise, indisposition, nausea, rise of temperature and local reactions, will invariably lead to utter failure. It is a serious question, therefore, in my mind whether or not the busy general practitioner will be able to use these methods of treatment to attain the highest success. Brilliant sporadic cases will be reported, but I do not believe that uniform and paramount success can be expected, and I fear that the harm which may ensue at the hands of too enthusiastic and careless physicians may offset the true virtue and value of the treatment in competent hands.

Relative to bacterin (vaccine) therapy, I am convinced by comparative experiences that by all odds the most successful results are to be obtained by the employment of autogenous bacterins. On the other hand, stock preparations should be used only when it is impossible or impractical to secure the autogenous agent. Naturally, gonorrheal and tuberculous affections are the particular conditions applicable for treatment by stock bacterins, on account not only of the difficulties of cultivation and length of time necessary for the maturity of the cultural growth, but also because in many instances of the impossibility of isolation of the particular bacterium. If the statement be true that the strains of the gonococcus are not so diversified as are those of many other organisms, we should expect comparatively more success from a stock bacterin than in some other infections. It is most important in all proposed treatments to determine definitely the specific infection, and always, when possible, to isolate and culture the particular bacteria and prepare and standardize the autogenous bacterin for administration. The grievous errors arising from guesswork and inoculation by false stock bacterins are obvious and assuredly unscientific. Such therapy is not deserving of success and serves merely to handicap a method of treatment that otherwise not only might be but is serviceable and efficacious. Therefore, it will be observed that opsonotherapy, as a rule, cannot be truly successfully carried out at home by the average practitioner of medicine not having a bacteriologic laboratory and the requisite bacteriologic knowledge.

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* From the William Pepper Laboratory of Clinical Medicine, University of Pennsylvania.

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

In the majority of instances, few in number aside from gonorrheal and tuberculous affections, in which I have been obliged to employ stock bacterins, I have used preparations standardized in the William Pepper Clinical Laboratory of Medicine of the University of Pennsylvania. Otherwise I have administered the tuberculins, bacterins and serums placed before the profession by the firms of H. K. Mulford Company of Philadelphia, Parke, Davis and Company of Detroit and H. M. Alexander Company of Marietta, Pa. There may be products of equal virtue on the market by other firms, just as safe and trustworthy, but I have always found these preparations as represented and up to the standard in every respect.

A much-mooted question at present is relative to the length of time bacterins retain their potency. This has been stated to be from six months to a year or more. It is probably true that the efficiency of the preparation will persist for this length of time, but that does not imply, necessarily, that the full or original therapeutic power of the agent is maintained. My experience with the autogenous bacterins of the common pyogenic organisms has shown that the best results have been obtained when the bacterins were prepared anew every two to four weeks.

USELESSNESS OF THERAPY BY PYOCYANEUS BACTERIN

Relative to the bacterin (vaccine) therapy of pyocyaneus infections, I have simply to state that I have never experienced the slightest beneficial effect, either from the autogenous or stock bacterins prepared from the *Bacillus pyocyaneus*. I am unable to explain this fact save that it is usually an infection superimposed on a previous suppuration, and is independent of the particular bacterium causing the infection; that is, it acts as a scavenger of the primary infection or suppuration—a pus parasite, as it were. It would seem, therefore, illogical to expect that anything can be gained by stimulating the cells of the human organism to the production of antibodies, through inoculation, by the bacterin of an organism which in itself may be entirely dependent on the action and products of a pre-existing infection. Therefore, I strongly favor the discontinuance of the manufacture of pyocyaneus bacterins.

116 South Nineteenth Street.

ABSTRACT OF DISCUSSION

Dr. Solomon Solis Cohen, Philadelphia: From a clinical standpoint I can corroborate what has been said of the value of the gonococcus bacterin in the treatment of *gonorrheal* arthritis. I have no experience with it in any other of the gonococcus infections. For some time, I have been using it in my wards at the Philadelphia Hospital and at the Jefferson Hospital in the treatment of the arthritic complications of gonorrhea, both late and early, and with good results. In the somewhat limited experience that we have had I have not been able to formulate any definite rule, except to be guided by the reaction of the patient. I am speaking now merely from a general recollection of a number of cases and cannot give those details which would be necessary for scientific critical analysis.

Dr. F. M. Pottenger, Los Angeles: I do not think that there is any warrant for speaking of opsonic therapy. There are many men to-day who do not consider what they are using, yet expect to get results, and are giving their opinions as to the value of vaccine treatment. Regarding the use of tuberculin, there is hardly a week that I do not receive a letter from some one stating that he desires to use tuberculin in a case, and asks: "What is the dose?" This kind of work will bring tuberculin into disrepute. I believe that vaccine therapy should be in the hands of men who will study its action, then something of value will be obtained. Otherwise, our literature will be filled with the opinions of those who have none to present. I have often thought that we have a good reason for autogenous vaccination, for instance in the tuberculous patient, who swallows perhaps a thousand times enough bacilli every day to infect him. His air passages are constantly filled with them, yet he often recovers. That seems to show that he produces more antibodies against his own bacilli, and justifies autogenous vaccination. But when we make an autogenous vaccine, grown on artificial media, we do not have the exact vaccine as we would were the culture grown from human tissue. I am a firm believer in the principles underlying bacteriotherapy. If we are careless, if we are over-enthusiastic, if bacterial therapy is to be exploited by everyone, I believe it will be discredited. I do not think the ordinary practitioner has any more right to use it than the surgeon would have to go blindfolded into the abdomen.

Dr. B. Fantus, Chicago: I would just like to bring up for discussion an idea that has been puzzling me; namely, whether the magic touch of the knife, the wonderful results obtained by opening the abscess, are not at least partly due to vaccination with autogenous vaccines.

Dr. Oscar Berghausen, Cincinnati: It seems to me that one very important point has been neglected this afternoon. I think we should use other measures in addition to the vaccines in order to increase their therapeutic effect. In some cases of acne, the use of a suction cup will secure a hyperemic condition, and more serum will be able to act locally. Likewise in gonorrheal rheumatism by employing congestion through the use of a bandage or hot-air, more serum is called to the part. In certain forms of infections, especially in streptococcus infections, the use of citric acid internally will render the blood more fluid. The use of other assisting measures should be favorably considered and should not be neglected.

Dr. W. H. Hutchings, Detroit: It is of the greatest importance that vaccine therapy should be in the hands of men who know how to use it. There is no doubt but that irreparable harm constantly is being done by men who have no conception of either the agent they are using or the theory on which its use is based. With the possible exception of staphylococcus and gonococcus vaccine, I do not believe that stock vaccines should be put in the hands of everybody who chooses to use them. As regards the value of the opsonic index, after an experience of four years, during which time I have treated hundreds of patients, both with and without the index, I have come to believe that it is of great value when properly done. The limit of error should be not over 15 per cent. This, however, can be secured only by devoting a great deal of time to it. The remarks made by Dr. Fantus in regard to abscesses and autointoxication are true. Unquestionably a process of autoinoculation is set up in those cases. Probably this is the way in which tuberculous peritonitis is cured by simply opening the abdomen and withdrawing the fluid. In fact, White of Dublin has shown that the tuberculo-opsonic index of the peritoneal fluid before operation was lower than that of the blood, while after operation the index, not only of the fluid which replaced that withdrawn, but of the blood also was much higher than before. We do the same thing in operations for cervical tuberculous adenitis. An autoinoculation invariably results. I no longer do these extensive operations in this region, but limit myself to simple incision and drainage of the broken down glands, relying on tuberculin for the cure. So far, my results have been satisfactory. I have used a vaccine prepared from the *Micrococcus neoformans* of Doyen in four cases of inoperable carcinoma. In the first of these, a squamous-celled carcinoma of the right superior maxilla, the result was surprising. Pain and bleeding ceased almost immediately and did not return. The sloughing areas cleared up rapidly, leaving a clear carcinomatous area about one-half inch in depth. The general condition improved markedly. The disease, however, continued to extend and the patient eventually died. No effect was produced in the other three cases. I do not for a moment believe that we will cure cancer by bacterial vaccines, but I do believe that by using a vaccine prepared from the germs infecting inoperable cancers, we will relieve the patient of much suffering and prolong life.

GENERAL PRINCIPLES OF TUBERCULIN DIAGNOSIS AND TREATMENT[*]

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Tuberculin represents the toxin of the tubercle bacillus. It may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacillus itself. In the latter, or emulsified form, tuberculin is also known as tubercle vaccine. The different modifications and preparations of tuberculin are practically identical in their physiologic effects. They vary chiefly in a quantitative way and in absorbability. Whatever their mode of preparation, the greater the content of soluble substances of the tubercle bacillus in a given preparation, the more powerful it is in causing the characteristic reactions. The emulsions being more slowly absorbed, are less active in producing fever reactions.

Tuberculin is in nowise a serum. It is the diametric opposite of an antitoxin, and should not be confused with serums which purport to be antitoxins for tuberculosis, and which have thus far failed to merit the name.

DIAGNOSTIC USE

Tuberculin depends for its diagnostic value on a special sensitiveness acquired by the tissues after a tuberculous infection. This sensitiveness is manifested by an *inflammatory response* when tuberculin is brought in contact with the skin or mucous membrane. The response is more marked when it is injected into the body in sufficient quantity to reach the focus of disease. The cells composing the tubercle develop the most sensitiveness; hence the so-called focal reaction to incredibly small doses, where the tubercles are recent. As the walls of the tubercles become fibrous, as in the process of healing, the sensitiveness becomes gradually lessened, and with it the delicacy of the tuberculin reaction. Even after complete cicatrization, however, the reacting power persists both in the tubercle and integument practically throughout life (with few exceptions), though more time and a larger dose of tuberculin are required to elicit the response. Hence, the clinical value of a tuberculin reaction is usually proportionate to the smallness of the dose and quickness and degree of the response.

The more recent the infection, and the more extensive the disease, the more delicate is the reaction, unless the disease is rapidly progressing or grave constitutional weakness is present. In the last-mentioned cases tuberculin can serve no purpose in diagnosis or treatment. The reaction occurs with increasing frequency as age advances. A large percentage of apparently healthy adults react to tuberculin. The number of these varies from 15 to 50 per cent., depending on the dosage, method of applying the test, and individual factors of unknown origin. Repetition of the test in the same or increased dose is capable of arousing a latent sensitiveness from a former or healed infection. Hence, this method, especially when applied subcutaneously, is mainly useful in excluding active tuberculosis. From what has been stated, it must be comprehended that tuberculin tests, when resulting positively, confirm the presence of a past or recent infection, but do not necessarily establish the diagnosis of an existing disease; this must be done by other means. Therefore, the tuberculin test is of equal if not greater value in excluding tuberculosis when no reaction appears, and the interpretation of positive results must be made with care.

CHOICE OF METHODS

The original tuberculin of Koch is the most satisfactory preparation for diagnosis, but other filtered extracts are suitable. Those preparations which contain dead bacilli or their fragments should not be used; likewise the emulsions or vaccines, owing to uncertain and irregular absorption. There is no evidence that tuberculin made from bovine cultures can differentiate between human and bovine infections.

The Cutaneous Test.—As introduced by von Pirquet, this is the most suitable method for general use, and is absolutely harmless. It is the only test required for children, because a positive result is more significant of a recent infection and occurs less often in apparent health under the age of 12. Other methods may be needed in adults to confirm the result of a cutaneous test, but it can be applied as a preliminary method in all cases with advantage.

The Inunction of Tuberculin Ointment, According to Moro's Method.—This involves more trouble, and the tuberculin is less certain to be absorbed uniformly. Much as to the strength or weakness of the reaction depends on the rubbing. It is said to produce fever reactions in slight, healed infections, and is useful in infants where objection is made to scarification. There are no other advantages.

The Intradermic Injection of Small Doses.—This is a delicate but more difficult modification of the cutaneous test, and has no practical advantage over scarification.

The Conjunctival Test (Wolff-Eisner, Calmette.)—This is a simple and delicate method, but to be recommended only with reserve. The eyes should be free from any trace of disorder or history of past disease. Scrofulous persons, children under 15, and adults over 60 should never be tested in this way. The use of strong tuberculin solutions or repetition of the instillation in the same eye are dangerous. When weak solutions are used fewer apparently healthy persons react than with the cutaneous test. The statement that only those persons react who are clinically tuberculous or who are in danger of an outbreak from a latent disease (Wolff-Eisner) has not been substantiated. This test has its best field in confirmation of a positive result from a cutaneous test, and in cases in which the subcutaneous test would be inadvisable or inadmissible, as in febrile cases. If the subcutaneous test is contemplated the conjunctival test should be omitted, as a recurrence of the eye inflammation is probable. Applications of tuberculin to the nasal, urethral, or vaginal mucosa have no advantages for diagnosis.

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[*] Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

The Subcutaneous Test.—This is the last resource, and the most searching method in tuberculin diagnosis. For this reason many regard it as the only satisfactory one, despite the chance of an unpleasant fever reaction. At present it may be regarded as unnecessary in most cases. In cases in which a focal reaction is desired, as in the diagnosis of superficial or surgical tuberculosis, or in which a negative result after a cutaneous test requires confirmation, it has great value. Since the focal reaction in the lung escapes notice in the majority of suspected pulmonary cases the subcutaneous test is of questionable value in confirming a positive cutaneous reaction. The dangers of this test have been considerably exaggerated, but in inexperienced or careless hands it is potent for harm. Certain contraindications and rules should always be observed, of which the following are to be mentioned as most important: First, the test should never be used when a satisfactory diagnosis can be made without it. Second, it should never be employed when a fever of 99.5 or over is present, or when the patient has a rapid pulse, gives a history of hemoptysis, or has already extensive signs in the chest. It should never be used in suspected Addison's disease. Third, the tuberculin should be fresh and the dosage accurate. Fourth, in the event of the slightest symptoms of reaction the subsequent dose should not be increased.

The interpretation of results in tuberculin diagnosis must take into account the size of the dose required to elicit the reaction, the promptness with which it develops, and the extent of the local and general reactions which accompany it. These factors, when considered in relation to the presence of symptoms of disease and according to the principles above set forth, must form the real basis for a correct differentiation between active tuberculosis and a latent or healed focus.

THERAPEUTIC USE

The therapeutic use of tuberculin may have two fairly definite objects in view: One is to diminish the sensitiveness to the toxin—i. e., to itself—the other is to create intermittent local reactions and thus to stimulate the disease focus to heal or become absorbed. The possibility of the production of a recognizable immunity to the disease thus far by any form of tuberculin treatment is open to question. A certain degree of resistance is indirectly accomplished when sensitiveness to tuberculin is decreased to a marked degree, accompanied by constitutional improvement. Such specific resistance as can be obtained by tuberculin is gradually lost after the treatment is discontinued, so that statements that patients can be made "immune" are unjustified. The degree of tolerance or immunity to tuberculin is proportionate to the dose that can be borne without reaction. Hence the progressive increase of dosage is essential to obtain that object. When only reactions about the focus of disease are desired the dosage need not be increased so long as sensitiveness persists to small doses. As soon as this is overcome the treatment should be interrupted until sensitiveness returns, or the doses must be increased to an unwise degree.

Indications and Contraindications.—Keeping in mind the objects above mentioned to be considered in selecting tuberculin treatment, it must be seen that only patients in a fairly quiescent state of the disease are likely to be benefited. Pulmonary patients should be in a good nutritive condition and free from persistent fever over 100, hemoptyses, night sweats, chronic diarrhea, or extensive laryngeal complications. The physical signs in the lungs should indicate a localized disease, free from large pneumonic consolidation or disseminated disease. Progressive tuberculosis of any form is a contraindication to this treatment. Tuberculin immunization is the only safe object to be held in view for the majority of pulmonary cases. Reactions are to be studiously avoided, and may involve danger when repeated, except in cases of well-arrested, localized disease. Slight unperceived focal reactions probably occur under any plan of tuberculin treatment and, when rightly timed, are beneficial. It is obvious, however, that focal reactions can be best observed and applied with safety in cases in which the focus is localized in the skin, bones, joints, or genito-urinary tract, and in which the lungs are not involved. Suppurating sinuses from tuberculous lymph nodes are beneficially influenced, but it is irrational to expect good results in large, closed, caseated or suppurated foci of any kind without the cooperation of surgical measures.

The Choice of Tuberculin.—For therapeutic use the choice chiefly lies between the solutions and emulsions or vaccines. Opinions are too variant to permit the formulation of rules. In general the dosage is more controllable with solutions, and reactions are less frequent from emulsions. The emulsions have experimentally some immunizing power against the disease in animals and therefore it would be rational to expect them to be useful in man; but the amounts which can generally be given in safety are too small to produce immunity in man. Owing to the uncertain absorption of emulsions, reactions may ensue unexpectedly if the dose is increased greatly. The solutions are therefore safer for tuberculin immunization until some accurate standards for determining the proper dosage shall be made. The dosage is at present empirical; each individual case must be an experiment, and the symptoms carefully observed before each dose. The clinical oversight is the most satisfactory guide. The opsonic determinations are of apparent value in the hands of a few skilled and painstaking laboratory workers, but are for the majority wholly impracticable and inaccurate as a guide to dosage and as a measure of resistance.

The subcutaneous injection is the only satisfactory method for the administration of tuberculin. The use of tuberculin pills or capsules for stomach ingestion and suppositories per rectum are too uncertain of absorption to warrant any recommendation. Inunctions of tuberculin have a possible field in treatment of skin tuberculosis; otherwise they are also impracticable.

The technic of tuberculin injections, the guide to correct dosage and intervals, are details which vary with the preparation used and the experience of different observers. These details are not considered in this paper, the object of which is to state—even if too arbitrarily—certain general principles which in my opinion should guide and safeguard the use of tuberculin.

6 Church Street.

ABSTRACT OF DISCUSSION

Dr. Francis M. Pottenger, Los Angeles, Cal.: First I wish to speak of the opsonic index as a guide to the use of tuberculin. If one studies the neutrophiles in connection with their phagocytic powers, he finds that such power increases from Class 1 to Class 4 of Arneth. Hence, in a leucocytosis, which often shows a high percentage of Class 1, there would be relatively less phagocytosis, which seems to disprove Wright's early statement that the leucocyte is an indifferent factor in phagocytosis. In the hands of careful men the opsonic index will, I think finally yield results. In tuberculin treatment we must bear in mind that we are dealing with an infectious disease, the cure for which depends on the establishment of complete immunity against the tubercle bacilli and its toxin. We must build up the patient so that his body cells will respond when stimulated. Next, we must see that our antibodies when present are applied. In small foci the small doses suggested by Wright are of value, but in advanced cases I believe that the larger doses are more effective, and with increasing dosage and constant stimulation the largest amount of antibodies are formed.

Careful consideration of clinical symptoms and close control of the patient, when using tuberculin, give the better results. I wish to see the patient on the day following as well as on the day on which the injection is made. To give the injections at set intervals is irrational. The time for injection depends on the size of the dose and the symptoms of the patient. The symptoms which guide me most often are unaccompanied by temperature rise. If the patient seems a little more nervous, if he aches, loses appetite, coughs and expectorates more than usual, I take it as a reaction. v. Pirquet's cutaneous test is very valuable, but requires considerable judgment. The symptomatology should aid you in deciding whether or not you are dealing with an active tuberculosis. If a closed case, you can inform your patient how to live.

Dr. Joseph McFarland, Philadelphia: Dr. Pottenger and I stand on opposite sides of this question. It is a matter of surprise to me that one so exact as Dr. Pottenger should be so extremely inaccurate in the matter of tuberculin. Personally, I am opposed to the use of tuberculin in the treatment of tuberculosis and I base that opposition on the fact that no animal can be immunized against tuberculosis by any previous treatment with tuberculin, nor can any animal already tuberculous have its life considerably lengthened by tuberculin. Therefore why we should infer that anything experimentally impossible in the lower animals should prove successful in human beings I cannot understand. We know tuberculin is injurious, it has its place in making the diagnosis of tuberculosis in cows, it is said to be harmless when used for that purpose, and in assisting in diagnosis in man, but beyond that I cannot see its usefulness. When Dr. Pottenger says that he has seen good results accrue from tuberculin that is entirely a matter of opinion, there is no measuring rod, there is no standard of comparison. Some time ago in discussing this matter with Dr. Flick I suggested that if the Phipps Institute could definitely establish some standard of comparison by which the different classes of cases could be investigated with reference to what they would do if they were treated dietically and climatologically without the use of medicaments of any kind, especially without the employment of tuberculin, it would be a most excellent work.

Dr. Theodore Potter, Indianapolis: In reference to tuberculin, we connot insist too much, in connection with what is going on over the country, on the importance of clinical judgment. Unless we do there is going to be a vast amount of reckless sort of diagnosis. It is plain that a considerable percentage of apparently perfectly healthy people react to tuberculin, and that there are others who may have a little focus that has been encapsulated and they react easily, and unless we insist to the average doctor that the mere application of tuberculin will not furnish a basis for his clinical diagnosis of tuberculosis, we shall have a lot of trouble over the country.

The surface tests vary in their rapidity. The eye test shows up most quickly of all. That is, I believe, generally agreed to. It not infrequently begins to show in four to six hours and very frequently in eight to ten hours. There is in that fact sometimes an advantage; the *time element* in making a diagnosis is to the clinician sometimes important. For instance, some of you see cases from outside of the city. Patients come to the city in the morning and must go home in the evening, or they come in the evening and think they must go home tomorrow morning, and in certain instances it seems proper to use tuberculin diagnosis. That may be the factor in determining the use of the eye test. As to the manner of action of tuberculin, its beneficial action: I happen to be one of those who have used tuberculin for many years, almost ever since it came out. I never believed and do not now believe that the only value is in its immunizing effect. Dr. Baldwin referred to its stimulating the formation of the fibroid tissue, and I always have and now hold that is one of the distinctly valuable effects of tuberculin, but I cannot prove it. I have met with a limited number of interesting examples of most remarkable improvement following the use of one or two large doses of tuberculin which I have never been able to explain. The article of Rotch of Boston, about a year ago in The Journal on the diagnosis by tuberculin, instances a case in which two children were given by mistake very large doses of tuberculin, in each instance developing a temperature of 106. One of these children promptly died probably, he thought, as the result of the injection. The other child promptly proceeded to get better very rapidly after that large dose. Now I have happened to have several instances of that kind. For instance, a man came to me last October, now some 18 or 20 months ago; he was then 37 years of age. I had *not* seen him for a year or two, I saw at once that he was not well. He gave the typical history of tuberculosis, fever, night sweats, loss of weight from 160 to 130 or 140, some 25 pounds loss. In spite of the most searching care I could not localize the lesion. I gave him 2 mgrms. of tuberculin with what I thought was a very moderate, but not very certain reaction. I then gave him an injection of 7 mgrms. of tested tuberculin, with a somewhat furious reaction, a temperature of 104 or more, and then there developed some slight focal symptoms, just recognizable, and that was all. I do not know where the real tuberculous focus was in that man. I recognized a little friction in one lung; he must have had tuberculosis somewhere else, probably in his bronchial glands. That man had been going for some three or four months down hill and without other treatment the man turned around and proceeded in a remarkable way to get well. He went along from the first of October until about the next April, when he showed some evidence of trouble and this performance was repeated. I gave him an injection of 4 mgrms. of tuberculin, just one, and he proceeded to get better and he is to-day apparently well. Now I have in the course of twelve or fifteen years happened to have had six or eight experiences of this sort in connection with the diagnostic use of tuberculin, all of course in early cases in which I could not be certain of the diagnosis from the ordinary physical method, and there occurred a pronounced reaction and forthwith there started a rather remarkable improvement. After fifteen years in the use of tuberculin to some moderate extent all the way along and more actively lately, I confess I do not know whether it is of much use or not.

THE TREATMENT OF INOPERABLE SARCOMA BY ERYSIPELAS AND PRODIGIOSUS TOXINS *

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The treatment of inoperable sarcoma by the toxins of certain bacteria is a treatment by vaccine. This vaccine differs, however, from certain other vaccines in not being a specific remedy, the toxins of the streptococci and of the *Bacillus prodigiosus* bearing no etiologic relation whatever to sarcoma, for the cure of which they are employed.

The foundation for this method of treatment of sarcoma is an empirical one. In a considerable number of cases in patients afflicted with cancer an attack of erysipelas led to a retrogression and in a certain number of cases to a total disappearance of the cancer, and especially of sarcoma. But certain other acute infectious diseases may likewise cause a retrogression of cancer.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Soon after the discovery of a streptococcus as the cause of erysipelas by Fehleisen[1] this investigator inoculated patients who suffered from cancer with the cultures of streptococcus of erysipelas; he was able to obtain some beneficial results. (His first report appeared in the year 1882.) Other surgeons likewise reported cures. In all of these cases, however, living bacteria were used, and it is not to be wondered at that in some instances such inoculations were followed by the death of the patient.

At that time it was already known that toxins are mainly responsible for the pathogenic action of microorganisms. It was a step in advance when in 1891 Lassar,[2] and soon afterward Spronck,[3] in Utrecht, recommended the use of the toxins of streptococci and of erysipelas instead of the living germs. In 1891 W. B. Coley of New York published some observations on the curative effect of the inoculation with the living streptococci of erysipelas in cases of sarcoma. In the following year he began a systematic study of the effect of the toxins of the streptococcus of erysipelas in the treatment of sarcoma. Since that time Dr. Coley has persistently continued in this line of therapeutical effort, and he has been able to collect very large series of cases treated by himself and by others with this method.[4]

He improved the method of treatment by adding the toxins of the *Bacillus prodigiosus* to those of the *Streptococcus erysipelatis*. He was led to this change by the observations of Roger,[5] who found that the toxins of the *Bacillus prodigiosus* increased, when injected into a rabbit, the virulence of living streptococci. In man, however, the cell contents of the *Bacillus prodigiosus* are toxic in themselves and the result of the injection of the combined toxins represents in all probability only the additive effect of both toxins. After various changes in the technic Dr. Coley found it best to use the non-filtered bouillon cultures of the streptococcus sterilized by heat, to which a certain amount of a culture of *Bacillus prodigiosus,* grown separately on agar and likewise sterilized by heat, had been added. The amount of endotoxin present in such preparations is greater than in filtered extracts. Later it was found that the *Streptococcus pyogenes* isolated from cases of septicemia was as effective as the streptococcus isolated from cases of erysipelas. It is even likely that toxins of other bacteria might serve a similar purpose; and Beebe and Tracy[6] found that the toxins of *Bacillus coli* had a similar effect on sarcoma of dogs. And, indeed, as early as in the year 1895 Répin[7] reported on the use of cobra venom for the same purpose.

The toxins are injected in gradually increasing doses, at first in a part of the body removed from the tumor, and later, if possible, directly into the tumor itself. The usual effect of bacterial toxins—rise in temperature, malaise, signs of local inflammation—follow the injection. In favorable cases Dr. Coley finds that the tumor shrinks and becomes softer within a week after the beginning of treatment. A tumor which does not respond to the treatment within four weeks is not likely to be favorably influenced at a later period.

According to Dr. Coley, the indications for the use of the toxins are the following:

1. All cases of inoperable sarcoma.
2. Certain cases of sarcoma of the long bones, still in the operable stage. In these the injection of the toxins may prevent the necessity of an amputation of the limb.
3. After operation for sarcoma, the injection being used as a routine treatment, in order to prevent recurrence of the tumor.

As to the actual results obtained with this treatment the following can be stated:

In tumors of dogs Spronck found in two cases no beneficial results; in five cases improvement followed the injection at a place distant from the tumor; the treatment, however, was not continued long enough to observe complete disappearance of the tumors. Spronck used spontaneous tumors. Beebe and Tracy observed a disappearance of the lymphosarcoma of dogs in a number of cases in which the toxins were injected into the tumor tissue itself. In one early case the tumor did not entirely disappear under the influence of the toxins and internal metastases were found at the post-mortem examination. It is to be emphasized, however, that these latter investigators did not use spontaneous but implanted dog tumors for their experiments, and it is certain that such inoculated tumors retrogress much more frequently spontaneously than primary tumors and are therefore probably more easily influenced by various therapeutic measures.

If we now consider the results obtained by this method of treatment in patients afflicted with sarcoma, Dr. Coley gives the following data: In 430 cases treated the tumor disappeared under the influence of the toxins in approximately 11 per cent. of the cases; 6.5 per cent. of the cases have remained without recurrence over three years after cessation of treatment. In 3 out of these 430 cases death followed, probably as a direct or indirect result of the treatment. According to Dr. Coley, in thirteen cases of sarcoma of long bones, observed partly by himself and partly by other surgeons, the use of the toxins has rendered amputation of the limb unnecessary; in other cases, however, the toxin treatment was without effect.

In a series of 22 cases in which the toxins were used after primary operation, 4 patients are now well after periods of three to eight years, and 9 after periods of one to three years; in 5 cases recurrence took place in spite of the toxin treatment; the remaining patients are still under treatment or the cases are very recent.

In order to supplement these statistics I have written to a number of prominent surgeons asking for a statement concerning their experience with Coley's fluid. Fourteen of these surgeons had had personal experience with this mode of treatment. The majority state, without giving the number of patients treated, that they have not seen any successful cases. From some surgeons I obtained the number of cases treated, and the result was as follows: Among 78 cases of sarcoma, in 4 cases a cure was obtained; therefore in not quite 5 per cent. of the cases treated a positive result was observed. On the other hand, in a number of cases in which no cure was obtained, the injection of the toxins seemed to have a marked weakening influence on the patient, and sometimes it produced a sloughing of the tumor.

It is therefore likely that the treatment of inoperable sarcoma with the toxins of streptococcus and *Bacillus prodigiosus* leads to a cure in approximately 4 to 9 per cent. of cases. And some results obtained so far suggest that this method of treatment may prove of value as a postoperative procedure in diminishing the number of recurrences, and that in a certain number of cases it might limit the necessity for amputation of the limb in cases of sarcoma of the long bones. As to its mode of action, nothing definite can be stated, but it is likely that the toxins themselves, as well as the local and general reactions they produce, frequently affect the life of the sarcoma cells unfavorably.

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[1] Fehleisen: Deutsch. med. Wchnschr., 1882, viii.

[2] Lassar: Deutsch. med. Wchnschr., 1891, No. 29.

[3] Spronck: Ann. de l'Inst. Pasteur, 1892.

[4] Coley, William B.: Am. Jour. Med. Sc., March, 1906; The Treatment of Sarcoma with the Mixed Toxins of Erysipelas and Bacillus Prodigiosus, Boston Med. and Surg. Jour., cxviii, No. 6; Sarcoma of the Long Bones, Ann. Surg., March, 1907.

[5] Roger, G. H.: Les maladies infectieuses, Paris, 1902.

[6] Beebe, S. P., and Tracy, Martha: The Treatment of Experimental Tumors with Bacterial Toxins, THE JOURNAL A. M. A., Nov. 2, 1907, No. 18, xlix, 1493.

[7] Répin: Rev. de chir., 1895, xv.

ABSTRACT OF DISCUSSION

DR. B. A. THOMAS, *Philadelphia*: Dr. Loeb's paper has recalled to my mind a very interesting case which was brought to my attention a year since. The patient had been suffering for several weeks from an inoperable malignant tumor of the mouth and was being treated at the time by one of Philadelphia's most eminent internists, whose word I think would substantiate the diagnosis of a definite neoplasm. After several weeks of treatment the patient was told that nothing further could be done and was advised to arrange his estate. A few days later he was taken ill with a severe infection of grippe. He was confined to bed for several days. A few weeks after he recovered he called to see the physician again and was informed that, beyond a doubt, there had been a considerable decrease in the size of the tumor and there was evidence of healing. In the course of a few weeks the growth had entirely disappeared and the patient died subsequently of other intercurrent condition. It seems to me advisable to report this case, in the belief that toxins of bacteria or infections other than those caused by *Streptococcus* or *B. prodigiosus* may at times be instrumental in the cure or treatment of inoperable sarcoma.

DR. W. DUFFIELD ROBINSON, Philadelphia: I employed Coley's serum in a case of extraperitoneal sarcoma and had tried everything else I could think of and all had failed absolutely in doing anything, but the Coley serum had the most remarkable control of pain. The young man required 1 1/2 grains of morphin every hour or two; on the second day after beginning the treatment the morphin was reduced to 1/4, at the end of two weeks 1/12 grain three times a day. He was made much more comfortable and improved in many ways, but eventually died. Coley changed the serum at different times according to his ideas of the condition present. The entire treatment was under Coley's supervision. The other case was sarcoma of the neck and jaw. This patient was taken to the hospital and treated under Dr. Coley's supervision without result, except for controlling of pain. It failed entirely, although the serum was crowded to the maximum dose. Operation was done and the man has a recurrence now.

DR. O. P. JOHNSTONE, *Pittsburg, Pa.*: I have used Coley's fluid in two cases of sarcoma; one, a typical large spindle-celled sarcoma of the palate, had been operated on three times the previous year, with recurrences. After the third operation I recommended a trial of Coley's fluid, and it was given every day for three months. It is now a year since the last operation and there has been no recurrence. In the second case, a spindle-celled sarcoma of the skin, operated on a year ago, could not be completely removed, sections from the edge of the portion removed still showing tumor tissue. Coley's fluid was given daily for eight months, and twice a week for the following four months. The wound healed nicely, and the skin around the wound where the sarcoma tissue was left appears normal. The girl has increased in weight and appears perfectly well a year after the operation.

Plague Infected Wood Rat.—The discovery of a wood rat (*Neotoma Fuscipes annectens*, Elliot), from Alameda county, California, on Oct. 17, 1909, infected with bubonic plague, adds a new link to the chain of plague, as it is believed this is the first plague-infected wood rat ever discovered. The wood rat may act as an intermediary in the transmission of disease to other mammals. The infection was found by Passed Assistant Surgeon G. W. McCoy of the laboratory in San Francisco (*Public Health Reports*, Jan. 7, 1910).

ANTIVENINS[*]

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In order to understand the proper administration of antivenins we must first consider several fundamental facts concerning the main properties of snake venoms and their antitoxins.

PROPERTIES OF VENOMS

1. *Constituents.*—There are three principal groups of death-dealing constituents in snake venoms, namely, the neurotoxins, hemorrhagins and fibrin ferments. In the venoms of colubrine snakes the neurotoxins are the most important constituents, while the hemorrhagins constitute the chief toxins of all the viperine venoms. The fibrin ferments are present in the colubrine as well as the viperine venoms and vary somewhat with the species. These three groups of toxins may in most venoms be present in varying quantities, but some venoms contain almost exclusively the neurotoxins, or neurotoxins and fibrin ferments with but little hemorrhagin. Thus the venoms of the Australian snakes—*Pseudechis* and *Notechis*—contain all three constituents in fairly even quantity, those of the marine snakes only the neurotoxins, those of the Indian and African colubrine snakes chiefly the neurotoxins with a negligible amount of hemorrhagins. The venoms of crotaline snakes, including the rattlesnakes and pit-vipers of America and Asia, contain chiefly hemorrhagins, with secondary amounts of the neurotoxins and fibrin-ferments. The real vipers owe their poisonousness to hemorrhagins, and sometimes to powerful fibrin ferments in their venoms. The most deadly of all the true vipers are the Indian *Daboia* and *Echis*. The *Elaps* of America has a venom rich in neurotoxins.

2. *The Causes of Death.*—Death from snake-poisoning is due to various causes, according to the varieties of venoms introduced. The death from the cobras, *Elaps*, *Bungarus* and marine snake-bite is due to the paralysis of respiratory center. The fatal issue from the poisoning by the daboia, *Echis*, and Australian snakes is due either to a rapid intravascular thrombosis or to secondary poisoning or infection resulting in marasmus. In cases of rattlesnake or any other crotaline snake-bite death is caused by occasional hemorrhages in vital organs or by a setting in of secondary poisoning resulting in cachexia or septicemia. In excessive absorption of these venoms death may result from the effects of neurotoxins also. The most distinctive of venom toxication in the crotaline bite is the extensive local disturbances produced by the hemorrhagins; this local effect is highly important in considering all the viperine and crotaline poisoning.

3. *Fatal Dosage.*—The minimal fatal doses of different venoms can be accurately determined by animal experimentation. But this is influenced by the mode of introduction of snake venom into the animal body. Thus in case of neurotoxic venom there is but little difference in the final result whether it is introduced directly into the circulation or under the skin. On the other hand, the minimal lethal dose of fibrin ferment containing venoms is very much smaller when injected into the circulation than when introduced subcutaneously, the greater part of the toxic ferment being absorbed in the neighborhood of the injection site. This is also true

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[*] Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

of the hemorrhagin-containing venoms. The minimal fatal dose of crotalus venom, for example, is several times smaller when given intraperitoneally or intravenously.

4. *Hemolytic Properties.*—Hemolytic principles of venom play no important rôle in the fatal issue.

5. *Specificity of Toxins.*—Specificity of toxic constituents of venoms of various species of snakes is very important in considering the questions of antivenins. It has been established since the investigations of Mitchell and Reichert that different venoms are different in their pharmacologic and chemical properties.

VARIETIES AND PROPERTIES OF ANTIVENINS

But the knowledge of specificity has recently gone much further mainly through the aids of antivenins. The recent studies demonstrate that not only the venom as a whole, but also the apparently similar toxic constituents of different venoms, are not identical. Thus, the neurotoxins of the cobra are not the same as those of *Bungarus* or *Pseudechis*. The hemorrhagins of the rattlesnake is different from those of *Ancistrodon* or *Lachesis*. The fibrin ferment of the daboia venom is entirely different from that contained in other species of snakes. Hemolysins are also specific. This fact is extremely vital in employing antivenins as therapeutic agents.

6. *Varieties.*—There are seven different specific antivenins produced.

Cobra antivenin (Calmette, Lamb).
Crotalus antivenin (Flexner and Noguchi, McFarland).
Moccasin antivenin (Noguchi).
Lachesis antivenin (Brazil).
Crotalus terrificus antivenin (Brazil).
Trimeresurus antivenin (Kitashima, Ishizaka).
Daboia antivenin (Lamb)

Calmette's antivenin is produced by using several venoms and is a polyvalent one, although its action on other than cobra venom is rather feeble. McFarland's antivenin was also a polyvalent one, though not very strong.

7. [illegible] *Antivenins.*—Antivenins contain [illegible] or antitoxins corresponding to the number and varieties of toxic constituents contained in a given venom. There may be present antineurotoxins, antihemorrhagins, antifibrin ferments, antihemolysins, etc. But their action is highly specific—that is, the antineurotoxin of cobra antivenin cannot neutralize any other neurotoxins but the cobra neurotoxin. The antihemorrhagin of lachesis antivenin is effective only in neutralizing the corresponding hemorrhagin. The hemolysis or fibrin ferment of daboia venom are not affected by the antifibrin ferment or antihemolysin of other antivenins.

8. *Standardization of Antivenins.*—In the therapeutic application of antivenins their specificity must first be respected. The methods of standardization of antivenins are different according to different investigators. With cobra antivenins the only reliable method is to resort to animal experiments. Calmette chose the rabbit, giving the antivenin and venom simultaneously into the marginal vein. Myers preferred the mouse, giving a mixture of the venom and antivenin which had been left in contact for a few hours, administered intraperitoneally.

With crotalus antivenin Flexner and Noguchi and Madsen and Noguchi used intraperitoneal injection of the venom and antivenin mixture into guinea-pig and rabbit.

With daboia antivenin Lamb employed rabbits and monkeys. The daboia venom cannot be used or tested in the same manner as in cases of other antivenins, as it contains powerful fibrin ferments. The strength is estimated by using the mixture of the antivenin and venom *(in vitro)* or by observing the anticoagulating power on the citrated blood plasma *in vitro.*

With trimeresurus antivenin Kitashima employed several laboratory animals.

9. *Therapeutic Dosage of Antivenins.*—This depends on the quantity of venom that may be introduced by the bite. We require that quantity of antivenin which neutralizes a maximum quantity that a snake can inject. Three important snakes can yield at one time the following doses:

Naja tripudians (Cobra)	02 —0.35 gm. (dried)
Crotalus adamanteus	0.2 —0.3 gm. (dried)
Daboia	0.15—0.25 gm. (dried)

The cobra antivenin prepared by Lamb requires 200 to 350 c.c., that of Calmette twice as much (Martin and Lamb).

The crotalus antivenin prepared by Flexner and Noguchi requires about 100 to 150 c.c.

The daboia antivenin prepared by Lamb requires about 150 to 250 c.c.

These quantities of antivenins appear enormous, but here come in some important factors to alter the matter. The resistance of man to these venoms, and the possibility of unfavorable conditions that may prevent snakes from injecting the maximum quantity of venom are the chief ones.

From animal experiments we can approximately estimate the minimal lethal dose of different venoms for man. Thus, according to several authors, one obtains the following data:

Cobra 0.015—0.0175 gm. (Lamb)
0.01 (Calmette).
0.031 (Frazer).
Daboia 0.06 (Lamb).
Crotalus 0.15—0.20 (Noguchi).

Under favorable conditions only the maximum quantity of venom may be injected by a snake, but this is not always the case. Especially the bite of *Crotalus* seldom destroys human life (Mitchell).

Supposing that a bite is inflicted by a cobra or any other venomous snake and the person receives a quantity of the venom little over the human tolerance. This excess may be so small that a few vials of antivenin may neutralize it and save the victim from death. This is very important in encouraging the use of antivenins whenever available. From animal experiments we know that the animals which survive acute poisoning with cobra or daboia recover rapidly without sequelæ. This is also true in human cases. The persons who escape death within the first few days usually recover soon.

Another factor is the favorable effect of a ligature in case of the daboia bite. The venom causes a quick intravenous thrombosis and prevents the absorption of the rest of the venom into the general circulation. Here we have ample chance to derive benefit from the administration of antivenin.

In crotalus poisoning death never occurs so rapidly and we also may expect much benefit from its antivenin.

All the antivenins should be administered intravenously or intramuscularly. In case of crotalus poisoning by *Crotalus* it is advisable to inject the antivenin both around the wound and intravenously.

In the future we must strive to produce much stronger preparations of antivenins than hitherto. At the Rockefeller Institute we now have several large animals under immunization with the venoms of the rattlesnake and water moccasin.

In closing I may add that in the southern isles of Japan the trimeresurus antivenin has been freely used and the statistics indicate a sudden fall of the mortality among the persons bitten by this formidable reptile.

The benefit of any antivenin is naturally greater when it is administered promptly, and none is to be injected unless the specificity is respected.

Rockefeller Institute for Scientific Research.

ABSTRACT OF DISCUSSION

Dr. Joseph McFarland, Philadelphia: Against how many fatal doses of crotalus poison has 1 c.c. of the anticrotalus serum been able to protect and what kind of serum was used?

Dr. H. Noguchi: Twelve doses to 1 c.c. injected intraperitoneally; the serum was goat serum.

Dr. McFarland: Sheep serum is better.

Dr. John A. Van Valzah, Daytona Beach, Florida: But how soon would the poison act after the subject was bitten by a snake?

Dr. Noguchi, New York: In a human case? Very little experience has been had. One of the assistants in the laboratory was bitten in the little finger. After about five or ten minutes he became nervous and the finger felt painful. Permanganate of potassium solution was injected freely, but the patient became depressed and the swelling went up his whole arm within twenty-four hours. Eventually he recovered. This was in the days before the antivenins were employed.

ANTIRABIC VIRUS

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Antirabic virus or vaccine, as used in the Pasteur treatment for the prevention of rabies or hydrophobia in exposed persons, consists of the spinal-cord material of rabbits which have died from rabies (or have been killed just before its termination), which has been induced by the subdural inoculation of the fixed virus of this disease. This fixed virus is obtained by the serial passage of the rabies as met in Nature (as, for instance, in mad dogs), through many successive rabbits. By this procedure it acquires finally a virulence which for any given strain of virus is fixed, and the incubation period of the disease caused by it in animals is uniform. At the same time its pathogenic properties have been modified so that it is less capable of causing rabies if inoculated subcutaneously.

In Pasteur's method of treatment, the spinal cord of the rabbit is dried for a time over caustic potash, at a temperature of 23 C., the result of this treatment being that the cord gradually loses its virulence, this so-called attenuation being probably a numerical decrease of infective units rather than a qualitative change. In inoculating persons who have been bitten by rabid animals those cords are administered first which have been dried so long that their infectious properties have become lost, and then on successive days cord is administered which has been dried for a shorter and shorter time, and which is consequently of increasing potency.

The virus or vaccine consists then of the spinal cord material of the rabbit, plus the micro-organism of rabies and its products, artificially modified as to its pathogenic properties.

It is administered subcutaneously, after being emulsified by rubbing up in a mortar, with a bland fluid such as physiologic salt solution or bouillon. The anterior abdominal wall is the most suitable site for inoculations. The treatment lasts from two to three weeks, according to the formula adopted by the institution providing the treatment, and is usually modified according to the severity and site of the injury. Injections are given daily.

The immunity thus induced is of the "active" type, the patient producing in his own body the "antibodies" necessary to prevent the pathogenic effect of the rabies virus with which the person has been accidentally inoculated. These antibodies are demonstrable in the blood of immunized persons or animals. This immunity is comparable, therefore, to that induced by smallpox vaccine against smallpox, and is entirely different from the passive immunity conferred against diphtheria, by the injection of antidiphtheritic serum. Reference to antirabic virus or vaccine as a "serum" is evidently incorrect.

It has been shown that this virus, like that of smallpox vaccine, is uninfluenced as to its potency for some time (at least three or four weeks) by immersion in neutral glycerin, or by the presence of small proportions of other antiseptics (tricresol, phenol). Advantage has been taken of this fact, and the virus may now be sent to distances from the laboratory where it is prepared, by conserving it in this manner, and be fully potent when used, provided that too long a time has not elapsed since its preparation and that it has been kept cool during transit. Deterioration is less rapid when the virus is preserved in bulk than when it has previously been emulsified.

Antirabic virus has no favorable influence on hydrophobia, once the disease has developed. Its beneficial effects are solely prophylactic and are rendered possible only by the fact that the average incubation period of rabies is relatively long.

Since the introduction of prophylactic inoculation by Pasteur many modifications in details have been introduced, the principle remaining the same. A detailed description of these modifications cannot be given here. What has been said applies to the most commonly used method of immunization with desiccated cord.

The treatment fails in cases in which the incubation period is too short to allow the necessary time for immunity to develop, in cases in which it is resorted to too late, and in those rare cases in which, from unexplained peculiarities of personal make-up, the individual is incapable of producing antibodies. These failures amount to less than 1 per cent., whereas in untreated persons who have been exposed the mortality has been variously estimated at from 5 per cent. to 20 per cent. or more. Variations in mortality statistics are due largely to the preponderance or small number of serious or belated cases in different regions. The bites of mad wolves, as in portions of Russia, give a mortality in untreated persons which often reaches 50 or 80 per cent., because the injuries are very severe and likely to be about the head and neck.

Pasteur treatment is now available at some twenty or more institutions in the United States,[1] and may be obtained from the Surgeon-General, United States Public Health and Marine-Hospital Service, on application by health officers having moderate laboratory facilities for administration under their supervision.

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[1] For a list of these see the publication The Prevalence of Rabies in the United States, by the United States Public Health and Marine-Hospital Service, Washington, 1909; also The Journal A. M. A., Sept. 25, 1909, liii, 989.

ANIMAL EXPERIMENTATION AND CANCER*

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> "The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals."—*Charles W. Eliot.*

Contrary to current ideas, cancer seems to be as widespread as are animal species. Although numerically more common in man, the statistics of Fröhner,[1] Sticker[2] and Semmer[3] show that from 5 to 8 per cent. of sick dogs suffer from cancer; that the mortality from tumors among pet dogs is surprisingly high; and that it is probable that the later periods of canine existence are even more afflicted than are similar periods of human life. In horses, swine and cattle, tumors are much less frequent, but particular forms of cancer, as melanoma in the horse and cancer of the eyelid in cattle, are relatively common. In birds lymphoma is a common and fatal form of malignant tumor, while some varieties of cancer have been recorded in nearly every organ of the body. In mice and rats the recent search for tumors for experimental study has revealed the rather frequent occurrence of tumors of the breast and other organs, as well as many cases of multiple tumors of various sorts in the same animal.

Passing from domesticated to wild animals, there appears to be a sharp fall in the incidence of cancer. Yet this gradation is sharply interrupted by an epidemic disease, probably cancer, occurring in artificially bred trout. In the Auckland Society Trout Hatchery, Bonnett[4] reports the occurrence of as many as 3,000 cases in four months. In pelagic fish the observations collected by the Imperial Cancer Research Commission show that cancers are not wanting in fish living under natural conditions, while bony tumors in certain fish are so common that W. Bell[5] once supposed that such conditions were constant and normal.

Descending even to the reptiles and amphibians, we find cases of cancer of the testis in the giant salamander recorded by Pick and Poll,[6] thyroid adenoma in the tortoise, cancer of the kidney and other growths in frogs (Bashford[7]), and many tumors in salamanders and lizards (Plehne[8]). Thus the study of cancer has a universal biologic interest. No other disease presents an equal scope, and the dignity of cancer research appears in its true form when one considers that its results apply *for all time to all orders* of living animals, possibly even to plants.

The frequency of most diseases varies in different periods of their history. Smallpox, once an ever-present scourge, is now comparatively rare. Tuberculosis, always abundant, has steadily been reduced in frequency. The declining incidence of these diseases is an important factor in judging of their hygienic significance. If cancer is steadily declining in frequency, or likely to do so, its importance as a human problem diminishes.

The weight of evidence to-day points almost conclusively to the opinion that cancer is steadily increasing in frequency in man and domestic animals and that this increase is likely to become more pronounced. Yet the most diverse opinions exist regarding the alleged increase in cancer, emanating from the varying character of the evidence assumed by different authorities as valid. Surgeons are practically unanimous in the belief that cancer has been steadily growing in frequency during the last quarter-century and has been appearing at earlier periods of life. Yet such testimony must be regarded as somewhat uncertain and unconvincing. Riechelmann[9] has shown that in the Berlin hospitals 20 per cent. of the cases of cancer demonstrated at autopsy were not recognized during life, and, since the diagnostic skill of Berlin physicians is probably above the average, there is still room for a 20 per cent. increase in the cases of recognized cancer from improved diagnosis alone. Cancer is a disease chiefly of the third to fifth decades of life, and it is, therefore, obvious that the improved hygiene of youth permits an increasing proportion of persons to live to adult life and thus reach the cancer zone.

These facts should be borne in mind in reviewing the statistics drawn by Williams[10] from the Report of the Registrar General of England.

Cancer in England and Wales

Year.	Total deaths.	Cancer deaths.	Proportion to population.	Proportion to total deaths.
1840	359,687	2,786	1-5,646	1-129
1850	368,995	4,966	1-3,579	1- 74
1860	422,721	6,827	1-2,915	1- 62
1870	515,329	9,530	1-2,361	1- 54
1880	528,642	13,210	1-1,946	1- 40
1890	562,248	19,433	1-1,480	1- 28
1900	587,830	26,731	1-1,207	1- 22
1902	535,538	27,872	1-1,183	1- 19
1904	549,784	29,682	1-1,138	1- 18
1905	520,031	30,221	1-1,131	1- 17

Thus from 1840 to 1905 the cancer deaths in England and Wales rose from 1 in 129 deaths from all causes to 1 in 17. In the registration area of the United States very similar figures are obtained, the cancer deaths rising from 63 per 100,000 living in 1900 to 72 per 100,000 living in 1906. The frequency of the disease may be better appreciated from the computation that in England of those living at the age of 35 years one man in eleven and one woman in eight dies of cancer. Future ratios we are perhaps not warranted in forecasting. In England cancer is already a more fatal disease for women than is consumption.

Are there any general hygienic factors in sight which may limit the cancer death-rate? On the contrary, statistics show that sanitary measures, which control the infectious diseases, exercise no such power over cancer, which is somewhat conspicuous by a relative failure to attack the poor, the overworked, the underfed, and the savage, but chooses a notable proportion of its victims among the well-to-do, the well-nourished, the well-protected against infectious diseases, and the indolent. Cancer is a growing penalty on a one-sided civilization. It has as yet no place in sanitary science. The most conservative estimate must, therefore, admit that the situation in regard to cancer is ominous. This disease is the greatest of all physical evils in the higher animal·kingdom and its unhindered ravages constitute a stigma on human intelligence which is not the less genuine because cancer is the most obscure and comprehensive problem of biology.

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* This article is one of a series issued in pamphlet form by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Eight of these pamphlets are now ready or on the press, taking up the questions of ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, rabies, typhoid, etc. An editorial survey of the series appeared in The Journal January 1 and a list of the pamphlets, with prices, was given on advertising page 8 of that issue.

1. Fröhner: Statistische und casinstische Mittheilungen über die Vorkommen und die chirurgische Behandlungen der Geschwülste beim Hunde, Monatsh. f. prakt. Thierh., 1894, vi, 79, 111.
2. Sticker: Arch. f. klin. Chir., 1902, lxv, 616.
3. Semmer: Lehrbuch der allgemeinen Chirurgie und Operationslehre (Möller), 1893.
4. Bonnett, cited by Pick: Berl klin Wchnschr., 1905, xlii, 1435
5. Bell, cited by Williams: Natural History of Cancer, Scientific Reports, Imperial Cancer Research Fund, 1904, i, 7.
6. Pick and Poll: Berl. klin. Wchnschr., 1903, pp. 518, 546, 572.
7. Bashford: Scientific Reports, Imperial Cancer Research Fund 1904, I.
8. Plehne: Ztschr. f. Krebsforsch., 1906, iv, 525.
9. Riechelmann: Berl. klin. Wchnschr., 1902, xxxix, 728, 758.
10. Williams: The Natural History of Cancer, New York, Wm. Wood & Co., 1908.

Thoughtful persons may well ask what science has done and what it is proposing to do for cancer.

In the first place, science—and exclusively medical science—has written the natural history of cancer. How it was accomplished has been told by Wolff[11] in a volume of 750 pages in which the labyrinth of detail, depicting the varying conflict of truth and error, does not obscure the magnitude of the task, the volume of labor expended, or the fascination of the narrative, which covers 2,000 years of human history. In this story, one is impressed by the fact that cancer research has been strictly limited by the progress of collateral sciences, and that the real progress of our knowledge has been contributed by relatively few men whose work was wholly beyond the reach of the public ken and whose results were depreciated or ignored by a considerable portion of the medical profession of their day.

The natural history of cancer has been very fully written, and to the surgeon belongs the credit of making practical use of this knowledge. The wisdom of an early recognition and complete removal of cancer by the knife is a lesson that has been thoroughly learned. Yet cancer is on the increase, and it must be seriously doubted if the earlier recognition of the disease and more effective removal will ever succeed in greatly reducing the mortality from its present figures. From the operating surgeon the cancer patient can hope only for an earlier resort and more frequent submission to the knife, and it is doubtful if this prospect has been any more abhorrent to the patient than to the surgeon.

Cancer research also up to 1900 has offered little encouragement to the victim of the disease. The systematic study of the cancer process, having vainly exhausted its energy in the parasitic theory, had fallen into a state of hopeless inertia. Medical science had branded this field as fruitless. Laboratory workers who were looking for results turned with dismay from the uninviting prospect. But in 1902 cancer research sprang into intense activity. New ideas riveted the attention of laboratory workers on this subject. Local, national and international societies were formed for the study of cancer along new lines. Broadly organized institutions supported by enlightened governments, universities, and men of means, were established in England and Germany for the systematic pursuit of the new themes. Medical literature abounded with contributions in the new field, and two new journals were shortly established, devoted exclusively to this work. The change has been almost instantaneous and constitutes nothing short of a revolution.

What influence has been capable of bringing about such a change? It was the introduction of animal experimentation into the study of cancer.

The idea of transplanting cancer from one animal to another was not new. Peyrilhe[12] tried it about 1780, when France was not ready for such work. Surgeons had long recognized that they never contracted cancer during operations in such cases, and Alibert[13] found that he could not inoculate himself or his assistants with the disease. Scores of observers had wholly failed in many attempts to transfer the disease from one animal to another, so that it was generally accepted that cancer was not inoculable. Yet in 1889 Hanau's[14] report of the successful transfer of an epithelioma from one rat to another excited much passing interest in Germany. In the same year, in France, Moreau[15] had very definite success in eight out of ten mice inoculated with a carcinoma of a mouse, and by 1894 he had carried this tumor through seventeen generations, making the first experimental observations on the influence of gestation and heredity on tumor growth. It was not until 1901 and 1902, when Loeb[16] in America and Jensen[17] in Denmark reported their systematic studies of transplanted cancers in rats and mice, that the great importance of this work became recognized. It was now seen that it was possible by animal experimentation to study the growth of tumors under the exact conditions of a laboratory experiment. The same methods which had proved successful with smallpox, cholera, diphtheria and tuberculosis were now made available for cancer research.

Accordingly the experimental study of cancer has been taken up energetically in England, Germany, France, Austria, Japan and America, with the result that in five years new facts of first importance have been demonstrated and the entirely new field of cancer immunity has been thrown open. It is too early to place a final estimate on the true value of many of these facts, but present indications point out some of the results as most significant and as revealing the revolutionary influence of the experimental study of cancer.

1. In 1862 Virchow[18] stated that no human being could define, even under torture, exactly what a tumor was. To-day we know, at least for cancer, that the final criterion is the capacity of a tumor cell to maintain an independent existence when transplanted into an animal of the same species, and this test has been successfully employed in several doubtful cases.

2. A sensational feature of the recent studies is the demonstration that cancer cells may apparently grow forever, if suitable environment be provided. The Jensen strain of mouse tumor has been transplanted through several hundred generations over a period of seven years and still shows undiminished vitality. There is good reason to believe that a certain sarcoma of dogs readily transmitted by coitus has acquired its very great infectivity by repeated natural transfers in this manner and thus constitutes a wholly new form of parasitism.

3. It has been shown that the conditions under which transplanted tumor cells will grow are extremely narrow, vastly more so than those governing the growth of bacteria. Haaland's cancer grew well in Berlin mice fed on milk, but when an attempt was made to transplant this tumor into Copenhagen mice of exactly the same species, but fed on carbohydrates, great difficulty was encountered. The slight difference in the diet sufficed to render the soil refractory. Such a result encourages the hope that it may prove possible to influence the growth of established tumors by practical therapeutic measures, although previously there seemed to be no ground for such a hope.

4. The question of the spontaneous cure of malignant tumors had long been debated and remained uncertain until such spontaneous regression had been repeatedly observed in transplanted tumors of mice, rats and dogs. This observation was so contrary to the well-established

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[11] Wolff: Die Lehre von der Krebskrankheit, Jena, 1907.

[12] Peyrilhe, cited by Wolff: Die Lehre von der Krebskrankheit, p. 65.

[13] Alibert, cited by Pianese: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1896, Suppl. 1.

[14] Hanau: Arch. f. klin. Chir., 1889, xxxix, 678.

[15] Moreau: Arch. de méd. expér. et d'anat. path., 1894, vi, 677.

[16] Loeb: Jour. Med. Research, 1901, vi, 28.

[17] Jensen: Centralbl. f. Bacteriol. u. Parasitenk., 1903, xxxiv, 122.

[18] Virchow: Die krankhaften Geschwülste, 1863, i, 3.

belief that malignant tumors never spontaneously regress that its occurrence in lower animals was at first vigorously denied, and only repeated demonstration compelled its final acceptance.

5. Most significant is the discovery that there is such a condition as immunity to cancer. Most animals that have recovered from tumors either spontaneously or after incomplete operation are thereafter immune to cancer. Not only may this immunity be established after spontaneous cure, but it has been artificially induced by inoculation with extracts of normal mouse organs and embryos. It is hardly possible to overestimate the importance of this discovery, since it at once takes cancer from a realm of baffling obscurity and places it in much the same position as the infectious diseases. The nature of this immunity is very complex. New methods must be devised for its study, but the possibility of perfecting these methods exists and solely as the result of animal experimentation.

6. After repeated transplantation cancers have been found to increase in rapidity of growth and in the capacity to survive transplantation; i. e., they acquire increased virulence. This wholly unexpected result, which might appear to be of no practical significance, has been used to produce artificial immunization, for by vaccinating an animal with a feeble strain of tumor from which it recovers, the animal becomes immune to the most malignant cancers. The principle of a preventive treatment of cancer has thus been disclosed.

7. Medical science has spent many years and much labor in the vain effort to discover a parasite of cancer. Even recently it has been feared that cancer patients were a menace to their neighbors, and that the houses of cancer victims should be burned. But the experimental study of tumors has greatly strengthened the view that cancer is not a contagious disease, that its exciting cause cannot be a readily transmissible parasite, and that the long-looked-for cancer parasite is the cancer cell. The field of research has, therefore, been narrowly defined, and it is not likely that the enthusiastic search for a specific cancer parasite will soon again assume the dominant position it once occupied.

8. The relation of heredity to malignant tumors has formed a vital chapter in cancer research, but based on the uncertain observations of family histories the most divergent views on this subject are extant, and exact knowledge about the nature of any hereditary influence in tumor growth is lacking. Are the offspring of two cancerous parents especially liable to develop the disease, and, if so, to what extent, and what course will the disease take? No one knows. Yet the early observations of Moreau bore directly on this subject, and in the short-lived mouse it is possible to devise experiments of reasonable time-span which will definitely settle some of these questions. In several laboratories such experiments are already well advanced, with preliminary results of great interest and importance.

9. The rational cure of established cancer in man remains a problem for the future. Mice have been cured by serum therapy, and in nine consecutive cases a malignant sarcoma in dogs has been cured by bleeding the animal and transfusing it with the blood of dogs immunized to this tumor. But the cure of advanced cancer in a human being presents many peculiar difficulties. It may be unsafe to make any predictions, but it is certainly legitimate to claim that the therapeutic principles established in lower animals will prove applicable in some form to man for cancer as for diphtheria. Hence we may endorse the statement of Ehrlich,[19] that the beginning of the end of the cancer problem is in sight. By the systematic pursuit of the principles of cancer growth and immunity already discovered by means of animal experimentation we may confidently hope to prevent some cancers, to check others, and greatly to reduce the incidence and mortality of this disease.

These are some of the practical results of the new era of experimental cancer research. From the standpoint of rational therapeutics the results of five years' work by the experimental method overshadow those of the thousand years preceding. Medical history offers no similar demonstration of the wisdom of absolute freedom for science in the use of animal experimentation. Thousands on thousands of fruitless efforts extending over at least a century were made to transplant tumors before a single definite success was secured. Yet it is said that needless repetition of experiments ought to be checked. Moreover, these results have not been reached without bitter controversy. Every step of the way has been energetically contested. Many loudly proclaimed that the experimental tumors of lower animals were not true cancers. Yet it is now known that every essential property of human cancer is exhibited by the cancers of mice, rats, and dogs. The immediate requirements of the practicing surgeon, and some theoretical burdens of the physiologist and biologist and of other scientists interested in cancer, have perhaps not been affected in a startling manner, so that in some quarters appreciation of the true value of this work may be slow. In the rear of every army of progress there is a scattered following of disaffected non-combatants, and modern cancer research has, therefore, been pronounced wholly fruitless by some uninformed persons.

To all critics, whether helpful or destructive, the answer must be that there is no prophet directing cancer research. No doubt posterity will be able to look back to the beginning of the twentieth century and point out that this or that piece of work was not in the direct line of progress. But here and now the most mature, although uninspired, human judgment says that genuine progress has been made into the dark domain of cancer pathology by means of the experimental method; that this knowledge could be acquired in no other way; and that these principles must be mastered before the cure of human cancer can be devised or attempted. Some critics seem to assume that the concentration of interest on the experimental studies has distracted attention from other equally important branches of the subject. But not the least valuable result of the experimental work has been the renewed impetus given, and the new view provided for the investigation of such topics as the inception of tumor growth, the laws of nutrition of tumor cells, and the influence of neoplasms on the body.

In view of the great significance of cancer for the animal kingdom, especially for man, and of the sudden transformation of the gloomy aspects of the problem wrought by the introduction of the experimental method into this field, what is the duty of the layman toward animal experimentation and cancer? Who may dare to lay obstacles in the way of this progress, or to obstruct the ray of hope that begins to shine for the victim of cancer? In America the workers in this and allied subjects look forward with confidence to the moral support of every intelligent person, and even anticipate that men of large minds and large means will come forward and adorn the land with one thoroughly organized and fully equipped institution for cancer research.

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[19] Ehrlich: Arb. a. d. k. Inst. f. exper. Therap. zu Frankfurt a. M., Jena, 1906, p. 78.

THE DIAGNOSTIC IMPORTANCE OF EXAMINATION OF THE FECES*

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INTRODUCTION

At the present time when the medical laboratory men are following Ehrlich and Wright into the fourth dimension of medical science, when clinicians cry for a "dead-sure" test and when all demand nice, "new," clean work, it would seem a thankless task to spend fifteen minutes in talking about stool examination. I also would much prefer as subject the "complement fixation of this," "or the opsonic index of that," etc.; but a varied experience in clinical laboratories has taught me the importance of stool examination, and its growing importance now that functional diagnosis is rightly demanding more and more attention. While I was in charge of a clinical laboratory to which specimens were sent from all directions, many mistakes by physicians came to my notice, of which the following are a few illustrations: a strip of mucus was mistaken for a "decomposed tapeworm"; normal meconium was called blood; a roundworm six inches long was diagnosed as hookworm because it resembled a much-enlarged picture of uncinaria; solid fat was not recognized at all; soap globules and vegetable cells were called eggs, and eggs of harmless saprophytes were considered those of pathogenic parasites. But stool examination is fast assuming a new and very practical importance. Functional diagnosis is the subject of the future. We now no longer ask merely, "What is the matter?" but also, "How much is it the matter?" and to gain any idea of the functional ability of the stomach, bowel, pancreas and liver, the stools must be studied.

My paper is not so much for the general practitioner who is willing to remain ignorant of the difference between an antigen-amboceptor combination and a thermostable immune opsonin, but who does know mucus when he sees it, as it is for those younger than I who lose the valuable information which stool examination might give them.

In the following paper I shall speak only of those findings which are of value to the busy general practitioner, omitting those methods of investigation which are reserved for the clinical laboratory.

At the onset permit me to emphasize one test which is very important; in fact, is the basis of all stool-work; the determination of the number of hours required for food to pass from mouth to rectum. This is easily determined by giving the patient with breakfast about one dram of charcoal or a little carmine. These are easily recognized in the stool. In some groups of cases it is well to use this test as a routine, and the results are often interesting.

This test may be used to test the presence of the so-called "latent constipation." In this condition it is supposed that while there is a normal-appearing stool every day and, therefore, no suspicion of constipation, yet the intestine contains always the feces of two or three days instead of but one, and each stool is, therefore, the refuse of the third or fourth day before instead of the second. While I would not try to be positive I do not believe in this idea.

MACROSCOPIC EXAMINATION OF STOOLS

It is from the inspection of a stool that one gets the most information. How few physicians ever look at the stools of their patients! How many are content with the nurse's stereotyped description, e. g., "a moderately large, fairly well-formed stool."

In certain conditions the appearance alone of some (but not all) of the stools of some (but not all) patients suffering from these diseases is at certain stages (but not all) of these diseases sufficient for diagnosis. But because the appearance of all the stools is not diagnostic one should not refuse the aid occasionally given.

As a rule the patient needs no aid in making this diagnosis of constipation, but it is otherwise with those who think their periods of constipation normal and who complain of the brief periods of diarrhea. These persons illustrate the old and very true, if not strictly medical, French adage that "diarrhea is one of the best symptoms of constipation." The stools in this condition are rather characteristic, since in the fluid stool are seen flecks of mucus and small, hard fecal masses which are evidently broken off from impacted masses higher up which cause irritation and so the diarrhea.

In mucous colitis, mucus is passed with the stools, sometimes a few shreds, sometimes many and in some cases the stool consists of nothing but mucus. One patient recently passed nearly a pint of mucus in one stool. Some think that they have passed pieces of bowel. These strings of mucus should be searched for in all doubtful cases with abdominal pain. Unfortunately general practitioners too often fail to look for them, or do not appreciate their significance. The nature and the differences between mucous colitis and membranous enteritis, if differences there be, cannot be discussed here, but even the most conservative will admit that the nervous element in both is of great importance, while the most radical will maintain that, except in a few cases due to pelvic tumor, mucous colitis is always a purely functional neurosis. Over 95 per cent. of the patients are nervous women and should be treated as such and the local bowel condition left alone. Were their stools examined for mucus, very many of these women would escape operations for appendicitis, renal colic, floating kidney, gallstones, and ovarian troubles, one or each in succession, since the colic of mucous colitis can stimulate each of these troubles. During the past year there have come under my personal observation roughly two thousand nervous women, and the history some give is very sad. They have had from one to ten operations performed on their abdominal and pelvic organs, and yet give clear histories of mucous colitis antedating their first operation. I feel this so strongly that in all doubtful cases suggesting any one of the above conditions I question carefully for the history of mucous stools, and in case these are or have been present will consent to operation only when the indications of a local trouble demanding operation are very conclusive.

The rare and interesting condition of intestinal sand does not attract nearly as much attention as it deserves. Intestinal sand is the name given to the sediment of fine granules which sometimes settle in a fresh liquid stool. These granules are from 1 to 2 mm. in diameter, are dark red, green or black in color, are spherical or slightly irregular in outline, and very hard. They are often present in great abundance, even half an ounce in one stool. Examined chemically, they have been found to consist of the phosphates and carbonates of calcium especially, but also of magnesium, iron, *etc.* A little organic matter, fat, cholesterin, and also bacteria are present in them. In one case they consisted of calcium sulphate. Those I have examined chemically consisted of a little plug of epithelial cells impregnated with carbonate salts. When but a few granules are present there is often a question as to the correctness of the diagnosis. Pseudosand is common. This may be the seeds of small fruits, various food adulterations, and various vegetable structures. The lower power of the microscope would easily detect the difference, and yet raspberry and similar seeds (perhaps timothy-grass seeds) have been sent to use for diagnosis. Intestinal sand appears intermittently in the liquid stools of some nervous persons. It may or may not be associated with mucus. It is perhaps due to a secretory neurosis and has the same significance as mucus.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

A definite colitis is usually indicated by the presence in the stools of pus- and blood-containing mucus. Whether or not there is increased frequency of evacuation will depend on the portion of the colon involved. Rosenheim has recently emphasized the relation between the portion of bowel involved and the symptoms. There is a form of colitis of the descending colon and sigmoid flexure especially, in which the stools are almost characteristic. Food is evacuated in from five to eight hours after ingestion. Its color, the test for bilirubin and the appearance of the muscle fibers and vegetable tissues on microscopic examination show that digestion in the small bowel is practically normal. The stools are soupy in consistency and contain many small masses of blood-stained mucus. On microscopic examination the red cells and leucocytes in the mucus cells are found to be in almost perfect condition. The stools are not very frequent, perhaps four or five a day, which is evidence of a normal rectum. This condition in one case now under observation has continued for over twenty years, without any periods of constipation, which differentiate it from the amebic colitis, and with little influence on the general health.[1]

In cases of rectal carcinoma the stools are very frequent and contain much blood and some mucus.

In all cases the feces of mucus should be studied for amebæ.

In the case of children the stools of blood-stained mucus should always suggest the possibility of intussusception.

Acholic stools are usually betrayed by their clay color, soft consistency and foul odor. They mean obstruction of the common duct. But somewhat similar-appearing stools are passed by persons on a milk diet, or other diet rich in fat. The stools in a case of violent diarrhea may be colorless. In some cases the putty-like stools are due to bacterial fermentation which have changed the bile pigments to leucourobilin. In the latter case the color will return if the stool stand in the open air. Bile in abundance can often be extracted by alcohol and ether from a stool the appearance of which would suggest its absence. When a common duct obstruction is suddenly relieved the stool sometimes has a bright orange color, due to bilirubin which normally is never present in any amount.

Fatty stools may indicate several possibilities. Large amounts of fat are present in acholic stools and in those of a person on a milk diet or a diet including much cod-liver-oil or olive-oil. The fatty stools of patients with diseases of the intestinal wall which prevent absorption, as tuberculosis or malignant diseases of the retroperitoneal lymph glands which blocks the flow of lymph are often of great aid in diagnosis. But true steatorrhea is present practically only in cases with total destruction of the pancreas and not always then. The fat of these stools resembles melted butter and hardens at once on cooling. The stools most characteristic of pancreatic disease are those described by Ury and Alexander. These are fairly solid and contain a great deal of visible fat, much muscle fiber, and are the stools of patients who are not jaundiced. But the large bulky, fetid, greasy stools, the volume of which seems out of all proportion to the amount of food eaten, which show signs of active fermentation and which contain gross masses of undigested meat and vegetables, are also very characteristic of deficient pancreatic fluid, and should be looked for in cases of malnutrition.

In pancreatic disease the inspection of the stools often gives very important information. In acute hemorrhagic pancreatitis an intractable constipation usually obtains at first; then, if the patient lives, a diarrhea which is just as intractable. The stools may or may not be acholic. In five cases from literature fat was grossly visible. In gangrenous pancreatitis a persistent diarrhea, sometimes with involuntary stools, is the rule. The movements are thin, copious, very fetid and in one case green, much resembling vomitus. In three cases abundant blood was present.

In abscess of the pancreas the diarrhea is very severe. The movements are profuse, watery, fetid, although in some cases they are solid and very offensive. In one fatal case there were over twenty movements a day. In one case there occurred a profuse hemorrhage, about 1,000 c.c., from the bowel. In only one case was fat recorded, while in several cases pus was grossly visible. In cases of pancreatic cyst the stools will depend on the injury the pancreas has suffered. The stools are usually normal, but in five a definite steatorrhea was present. The diarrhea pancreatica which accompanies the evacuation of the cyst through the bowel is especially interesting. Late in a case of chronic pancreatitis, diarrhea is the rule. The stools are pale in color, of offensive odor, contain much undigested food and sometimes rather large lumps of fat. Blood is sometimes present in the stools. In cancer of the pancreas the stools may be normal, but steatorrhea and azotorrhea often are present near the end. In 13 cases of calculus of the pancreas with subsequent atrophy, blood was present in the stools of 4, and fat in those of 3.

The tarry stools in cases of gastric and duodenal ulcer are characteristic of severe hemorrhage in the upper alimentary tract. One practically never sees really tarry stools in typhoid fever; in the most of these cases the blood is fairly bright. But the stools may be fairly black when the patient is taking bismuth subnitrate or after they have stood for a time in the air, if he is taking iron.

Gall-stones should always be searched for in the stools of a case of suspected gall-stone colic. The stool should be mixed with water and strained through a coarse mesh. Failure to find the stone may mean that the right stool was not examined, that the stone was soft and disintegrated in the bowel, or—and this is most important—that the colic is due to some other cause. In this connection should be mentioned pseudogall-stones. Of these the fat concretions are most important. These may be from a pea to a hazelnut in size and consist of fat of high melting-point. They may follow a meal rich in pork fat, mutton-fat, tallow, etc., but the most are seen in the stools of a person taking much olive-oil. It is these pseudostones which give this oil its undeserved reputation as of value in helping the gall-stone to pass. Also masses of vegetable and especially of fruit tissue may appear as concretions and they are sometimes harder than gall-stones. It is well to split open a suspected gall-stone and to examine its fractured surface, or to dissolve a little of it in boiling alcohol and to obtain cholesterin crystals when the alcohol cools.

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[1] At autopsy the colon from just above the cecum to the sigmoid was uniformly small, scarcely admitting the finger. Its mucosa seemed in the main replaced by scar tissue in which were innumerable small bleeding points. The patient died of carcinoma of the cecum. There was no evidence of tuberculosis or amebic dysentery.

The curds seen in the stools of infants and of adults on the milk diet are usually said to consist of casein and are interpreted as evidence that milk is not well borne. But these "casein-curds" often consist of almost pure fat.

One never in a normal stool finds gross particles of meat, bread or potato. These may be present in diarrhea due to any cause, but if they are seen in a firm stool the evidence is in favor of pancreatic disease.

The normal stool may contain visible masses of soaps —the yellow masses of calcium soaps, and masses of colorless soaps.

The study of intestinal worms is of growing importance. The ordinary roundworm and links of the tapeworm are readily recognized. It is well to remember that decomposing tapeworm-links are practically never found in a fresh stool. That which suggests this diagnosis is almost invariably a string of mucus. To find the head of the worm it is best to shake up the stool in water and allow it to settle. All fragments of the worm will promptly sink to the bottom.

Tænia solium is in this country an exceedingly rare worm. I know of but one certain case. But one is often tempted to make this diagnosis, since the over-ripe segments of the *Tænia saginata* would appear to have a uterus with few coarse branches. An expert recently visiting the museums of some of our medical schools was able to find no specimen of *Tænia solium.* Of thirteen specimens thus labeled, eleven labels were certainly incorrect and the other two worms were too decomposed for identification.

To find the smaller worms, the stool should be well spread on a porcelain plate. Oxyuris, contrary to popular belief, does inhabit the intestine as high as the cecum or even higher, and may be found in the body of the stool. *Uncinaria americana* and *duodenalis* can easily be differentiated under a dissecting microscope if one take trouble to examine the head and caudal bursa. The reason why adult trichinas and whipworms have not been found oftener is that they have seldom been looked for.

THE MICROSCOPIC EXAMINATION OF THE STOOL

This is really the only method which the clinician can use to judge of the functional ability of the digestive organs, since accurate metabolism work is impossible for him. But to form a correct estimate the patient must be on a special test diet. That to be recommended is the Strasburger and Schmidt diet. To examine the stool microscopically the particles to be examined should be selected with care. If the stools are mixed with water and spread on a plate the choice often is easily made. If not, the stool may be mixed with water in a glass jar. The mucus will tend to rise to the surface together with some of the vegetable tissue. Parasites' eggs will sink together with fragments of food, meat especially. From this water suspension may easily be selected particles for further study. The variety of objects which may be found on microscopic examination of the stool is unlimited. It will depend on the food eaten, on extraneous matter eaten with the food, on substances contributed by the digestive organs, on the flora and fauna of the alimentary canal, and lastly on the extraneous matter which adds itself to the stool after it is evacuated. This means that the microscopist may run across almost anything. He should be able to recognize vegetable tissue in general, especially the common forms of fiber. Especially should he be able to recognize chlorophyl-containing cells. The spiral cells are easy to recognize; the guard cells of leaves have been taken for fragments of carcinoma. The thorns of the down on some fruits are often diagnosed as worm embryos, while single cells, spores, pollen, etc., are often mistaken for eggs. Unfertilized eggs often do look very much like vegetable cells. Muscle fibers with the cross-striation well preserved are easy to recognize, but those partially digested are more difficult. It is important to be able to judge roughly whether an unusual number of fibers have appeared in the stool and if they show signs of insufficient digestion, for the condition known as azotorrhea is important in the diagnosis of pancreatic disease. By this we mean the presence in a firm stool of an unusual amount of undigested muscle.

One who systematically examines stools will surely find many eggs and larvæ which he cannot recognize. The great wonder is he does not find these oftener. Two easy mistakes are thinking that the eggs of *Tyroglyphus siro,* or the flour mite, are those of *Bothriocephalus latus* and mistaking the larvæ of many dipteræ for the rather serious screw-worm. The number of dipteræ and other insects which have access to food and to the raw materials of which food is made is great. Here they lay their eggs or add their bodies to the dish. In the stool one finds eggs, larvæ, perfect insects, and fragments of these. But the insect contaminations of greatest importance are those which are added to the fresh stool if it is not carefully covered as soon as evacuated. Fortunately we can usually recognize these as accidental findings. If in doubt one can always refer the specimen to the experts at Washington. In general these extraneous saprophytes' eggs are larger than those of pathogenic parasites. But just as serious is the danger of interpreting vegetable cells and even some soap masses for eggs.

The work of careful men has shown what a large number of persons are the hosts of animal parasites. *Ascaris lumbricoides* was found in about 0.4 per cent. of all examined, *Oxyuris vermicularis* in 0.8 per cent., strongyloid worms in 0.6 per cent., *Trichocephalus trichiurus* in 10.3 per cent., and *Uncinaria* in even 3 per cent. of all examined in some portions of the South. The eggs of *Ascaris lumbricoides* occur in large numbers in the stools of infected persons. When fertilized they are very characteristic, but the unfertilized eggs are often mistaken for vegetable cells. The eggs of *Oxyuris vermicularis* may be found in the stools, but more often in shreds of mucus on the surface of the stool and still more often in the scrapings from the margins of the anus. The eggs of *Uncinaria duodenalis* and *Uncinaria americana* are exceedingly important, since the anemia these worms produce is now recognized as a disease of national importance.

In searching for eggs the temptation is to pick out for examination a fragment of feces at random. But when in doubt the stool should be mixed with water, sedimented or centrifugalized and the sediment examined. It is often wise to give a dose of santonin or thymol to aid in the search for worms. If an infection with *Strongyloides intestinalis* is suspected the stool should be placed in a dish, a small depression made on its surface, this filled with water and the stool left in a thermostat over night. If embryos are present they are easily found as eel-like worms actively swimming in this water. The eggs of these worms are seldom found in the stools. Of the protozoan parasites the various flagellata and ciliata are usually easy to find because of the commotion they make. *Amœba coli* is an exception to this. The stools, or better still the mucus which the eye of a rectal tube scrapes from the rectal wall should be examined while very fresh and, during the winter, before it has chilled. One examines the flecks of blood-stained mucus, if such there are; if not, the liquid portions of the stool. Definite ameboid motion, by which we mean the extension of a hyalin pseudopod from a granular endosarc, should be demanded. If in doubt the safest rule is always to discard the doubtful cell. One learns much now of the nonpathogenic *Entamœba coli* and the pathogenic *Entamœba dysenteriæ*, and of the encysted stages of the latter; but for the clinician these terms are only interesting reading. If he finds a small ameba, without hyalin ectosarc, in the fluid part of the stool, not associated with blood and mucus, and in a case the symptoms of which are not those suggesting amebic dysentery, he may possibly be safe in calling it the harmless *Entamœba coli*. Fortunately, however, during acute exacerbations the amebas are often numerous, are found in flecks of blood-stained mucus and themselves often contain one or more red blood cells. Clinically cases of amebic dysentery are characterized by chronicity and the tendency to relapse. The cases of great importance are those of amebic abscess of the liver and yet in patients who give no history of dysentery. The stools of all cases of suspected liver abscess should be carefully examined.

Pus in the stools is seldom recognized grossly, but the mucus flakes clouded with pus cells are helpful in the diagnosis of ulcers low in the small bowel and colon. Red blood cells are usually seen in the mucus. From the condition of these red cells and the conditions of the leucocytes one can easily get an idea as to the source of the mucus. Charcot-Leyden crystals, if numerous, are important as suggesting an animal parasite.

Those who cling to the possibility of an autointoxication from the intestine are still making cultures of the stools for bacteria. As is well known, bacteria may make up even one-third of the dried stool. Many of these are dead and most cannot be demonstrated as alive by any of the common methods of investigation. These bacteria of the bowel contents may be classified as the normal flora, the harmless organisms accidentally swallowed with food, and those causing disease. Among the flora are *Bacillus lactis aerogenes* from the upper bowel, and *Bacillus coli communis* from the lower, *Bacillus subtilis*, *Bacillus alkaligenes*, and, for the suckling, *Bacillus bifidus*. Various thermophilic and acidophilic organisms may occur in great numbers.

Among the interesting pathogenic organisms which are frequently found are *Bacillus pyocyaneus*, the various staphylococci, streptococci, *Bacillus tetani*, *Bacillus aerogenes capsulatus* and *Bacillus tuberculosis*. That many of these pathogenic organisms, especially the streptococci and staphylococci, are almost normal flora, is seen by their almost constant presence in appendix abscesses and in the peritoneal pus in cases of perforation of the bowel. *Bacillus tetani*, *Bacillus aerogenes capsulatus*, *Bacillus bifidus* and *Bacillus subtilis* are some of the important Gram-positive organisms which have attracted attention recently in cases of pernicious anemia. In cases of suspected tuberculous enteritis it is important to search for the tubercle bacillus. To fail to find it has but little value. In cases of pulmonary tuberculosis, bacilli may often be found in the stools. To search for this bacillus it is well to examine any particles of mucus which may be present, but to digest a stool is seldom profitable work. If one wishes to examine a solid stool, a small fragment is mixed with 1.5 c.c. of distilled water. To this is added 54 c.c. of a mixture of equal parts alcohol and ether, and it is centrifugalized for ten minutes. A smear is made from the sediment. Of course, one should test the bacillus as to its alcohol-fast as well as acid-fast properties.

In certain cases of intestinal fermentation it may be well to examine for *Bacillus bifidus*. The search of *Bacillus typhosus* by the use of the Drigalski-Conradi medium is seldom of practical importance in the diagnosis of typhoid fever.

CHEMICAL ANALYSIS

The chemical analysis of the stool is seldom of any practical importance in the hands of clinicians, but the detection of occult blood in the stools is a marked exception and should always be tested for in doubtful gastro-intestinal cases. Even the fresh blood accompanying a firm stool and ascribed to hemorrhoids is of importance, since there is evidence that these repeated small bleedings may lead to severe anemia. Blood in any amount from the cecal region or colon is discharged red and fluid, but blood in small quantities from even the colon, or from the small intestine, is usually mixed with the feces and can be detected only on chemical or spectroscopic examination. A great deal of interest, and rightly, is now centered on the minute traces of digested blood found in the stools in malignant disease or ulcer of the stomach. The idea is that a constant trace is suggestive of cancer, while in ulcer there are periods with much blood present and then periods with none. Since tests are also given by all hemoglobin-containing and some by chlorophyl-containing foods, and all by some medicines, the patient should be on a diet of milk, bread and eggs, the limits of which diet-period are sharply marked by charcoal. The turpentine-guaiac test is given positively by too many foods, and so the aloin test is preferred because of its delicacy and because it is not given by chlorophyl or urobilin. This test too often fails to show blood with tuberculous ulcers of the bowel, while in chronic passive congestion blood is usually present. This test has proved of greatest value in the diagnosis of gastric carcinoma and in the differential diagnosis between ulcer of the stomach and nervous gastralgia. But in the case of gastric carcinoma I do not think it is as important as the test for blood in the gastric contents.

I believe that the bilirubin tests also have practical clinical value in the diagnosis of the location of a bowel trouble, whether in the colon alone, in which bilirubin cannot be detected in the stools or in the small bowel also, in which cases it will be formed. Schmidt's test is easy and satisfactory.

Microscope-stage chemistry is often valuable, and is easy for one practiced in that technic. One forms an idea as to the amount of muscle fibers digested, and readily distinguishes between mucus and vegetable tissue. Fatty acid crystals are seen as short, delicate curved needles which are clustered in thick masses. These are dissolved on warming and in ether. Soap may be present in yellow masses of calcium soaps, in colorless masses and in long needles in clusters or fans, or as short, plump crystals or scales. The most of the crystals one sees are soaps. Soaps are not soluble in ether but are in water. One of the best tests for soaps is to warm the stool on the slide with a drop of acetic acid and watch the crystals of fatty acid crystallize out. The droplets of neutral fat are soluble in ether and give the Sudan III test. But droplets are seldom seen unless there is a great increase in the stool. Hawes[2] has shown that an increase of visible fat under the microscope will certainly mean an increase of fat in the stool, but there may be an increase of the total fat without any visible evidence of it. An easy way to test the presence of fat in the stool is to press a portion under a cover-glass. If the portion selected be mucus or vegetable tissue the glass, when released, will spring back and air will rush in under the cover from all sides. If fat, the glass will stay down.

Starch granules are easily recognized by running a drop of Lugol's solution under the cover-glass.

Both pepsin and trypsin may be demonstrated in the stools in a case of diarrhea. The detection of trypsin has again recently attracted attention.

ABSTRACT OF DISCUSSION

Dr. Henry F. Hewes, Boston: Many men turn away from work on the feces because they claim the new methods of examination are so difficult. As a matter of fact, it is a very simple matter to make an examination of feces if time is taken and ordinary apparatus be at hand. It is much easier to obtain feces than it is to obtain the gastric contents. It is a common thing to have referred to me patients with intestinal trouble of a year's duration who have never had their feces examined. I think I have saved at least ten such individuals from the surgeon's knife, from an operation for appendicitis by examining the feces and finding mucus. There should be more study of the food elements and a determination of the functional conditions. A common objection to this is that it entails the giving of a test diet and patients will not take the test diet because it means from two to three days' deprivation of their ordinary meals. Of course, when we want to be accurate the test diet must be used. But if the observer has much experience of feces examination he can draw his conclusions from the feces of any simple diet and need not keep to the strict test diet. For example, if a sufficient amount of fat is taken and if there is much disturbance in digestion or absorption of that fat there will be some evidence of it whatever the diet and one can judge pretty accurately whether there is a disturbance of fat digestion or absorption causing a failure of nutrition. I do not think that any difficulty in giving the test diet should stand in the way if one takes a little trouble. Take a microscope and examine the feces and learn what food has been taken; if one is familiar with the feces one can soon learn to note variations from the normal for the amount and character of the food taken in any given case. Certain methods should be used in a routine way in all cases in which there is any question, and these methods can be carried out perfectly well by the general practitioner in his office. It is easy to obtain feces and it is easy to learn without special instruction how to examine the feces and to recognize elements as they appear normally or in pathologic conditions; but the physician must stick to his work for a month or two until he familiarizes himself with the normal forces and learns to recognize abnormal elements.

Dr. George Dock, New Orleans: I have practiced the same methods for a long time and I can confirm every thing that has been said about the value and practicability of such an examination. There are one or two practical difficulties in the examination of stools that I have encountered which may be worth mentioning. As Dr. Hewes has just stated, the examinations are best made in the office; the more recent the stools the better. It is surprising how many persons can produce a stool at command. One can get a stool almost as easy as he can get a sample of urine in many cases. By placing a flat dish or a developing tray under the seat of a closet one can get a stool without urine. If the patient cannot have a stool at command give him a glycerin suppository. But in some cases stools must be sent. It is as important that the patient should be told how to prepare and send the stool as it is to tell him how to send a specimen of sputum. The ordinary method of obtaining a stool in an ordinary chamber and then decanting it is open to criticism. The stool should be brought to the physician in as natural condition as possible; the best thing to use is a so-called granite custard dish. Formerly I used a photographic developing tray, but the dish is cheaper and better and the stools can be kept fresh with a lid. Next to that is the ordinary fruit jar. Another point I wish to speak about is the great objection many have to examine stools; the general practitioner speaks of the disagreeableness of this sort of work. That is an individual's opinion of course. I have found, as a general thing, that the examination of a pathologic stool is no more disagreeable than the examination of sputum or stomach contents. An examination of a normal stool, however, is more disagreeable. The more pathologic the stool is the less repulsive is it. If one will practice examinations of stools, doing the actual work, not only will he find out much diagnostic information, but will be surprised to see how easy a matter it is and how few real technical difficulties there are.

Dr. David L. Edsall, Philadelphia: A point of importance in regard to the test diet is its value in comparing one case with another; but to use the test diet as the only method of examination overlooks another very important point. What we want to know is how the patient digests the food taken in his ordinary diet; hence I think the most important thing in determining the condition of a patient so far as examining the stools is concerned, is to examine the stools when he is on his ordinary diet. It is easy in this way, as a rule, to determine whether fat, protein or carbohydrate is causing disturbance in the amount and kind of food that the individual has been taking. If we simply use the standard test diet which ordinarily differs very much from what the patient has been in the habit of taking, we often do not determine what is wrong in his manner of life. Another thing which has not been mentioned I have found extremely helpful, namely, observing the extent to which the stools ferment. It is easy to do this by simply keeping a stool in a closed jar at room-temperature for from twelve to twenty-four hours and observing what degree of fermentation occurs, and the result often helps clearly in determining whether the symptoms of fermentation are due actually to abnormal degrees of fermentation in the bowels or whether the flatus and other similar symptoms are due to neurotic disorders of peristalis, etc. It helps also in outlining the diet and in determining the degree to which improvement is taking place. As to the question of mucus I feel positive that there is a strong tendency to make too much of this unless very abnormal amounts are present. Patients readily get terribly hipped about the presence of a small amount of mucus in the stools. Small amounts usually mean nothing except that there is some slight source of irritation and, probably, that Nature is making an effort to limit this irritation by protecting the bowel wall with mucus. One common and important cause of the persistent presence of mucus in the stools is the more or less excessive use of purgatives; many cases of so-called mucus colitis are merely purgative colitis and not a disease. In a large proportion of instances getting the patient to stop the use of purgatives by means of diet and other normal measures will cause the mucus to disappear from the stools entirely.

Sir James Alexander Grant, M.D., Ottawa, Canada: I have listened with pleasure to the paper and discussion on the diagnostic importance of examining the contents of the alimentary canal. A neurotic condition has just been referred to. For nearly fifty years, since graduation at McGill University, I have carefully observed varied conditions of the alimentary canal, and years ago was convinced that a neurotic state of this canal had more to do with its troubles than is general credited. My first effort on this subject was fully twenty years ago ("The Alimentary Canal and Human Decay, With Reference to the Neurons") and recently in the *New York Medical Journal* in a brief paper on "The Clefts of The Axis Cylinder, The Cable of the Nervous System." Prof. Walter Foster in his last great work (page 122) adverts to the axis cylinder having clefts, which have been observed during life and after death, but no reference whatever to the results of such an abnormal condition. Professor Sherrington of Manchester and McDonald of Sheffield, England, have carefully defined the saline constituents in the axis cylinder. Imperfect assimilation of food products, animal and vegetable, generates poisonous gaseous material, which acting directly on these very axis cylinder salines produces the clefts in question and hence the telling systemic results. There are troublesome digestion, inability to move about with usual activity, ordinary business duties most troublesome, the heart's action feeble and imperfect, frequently approaching heart failure. Why all these indications of constitutional debility? They are entirely the result of defective power in the elaboration of blood, the outcome of these very clefts, so disturbing to the histogenetic process, in Nature's greatest laboratory, where the chief pabulum of life, blood, is generated. To counteract this there should be strict attention to diet, massage over the abdomen with antiseptic liquid soap for ten minutes daily and continued for two or three weeks, and after each massage application of electricity by means of a neurotone and dry electric cell for ten minutes at each application. Much benefit is also derived from application of electricity to the moistened extremities for a few moments daily, thus calling into action the terminals of the crural and sciatic nerves—to the pelvis, spinal cord and abdominal ganglionic system. Beyond a doubt electricity removes the clefts and reestablishes digestive power to a remarkable degree. We are but in the initial stage in this investigation, which I have briefly presented on the present occasion, feeling confident years can thus be added to any ordinary life in middle age entirely free from organic disease.

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[2] Hawes: Boston Med. and Surg. Jour., 1909, clx, 429.

Dr. Woods Hutchinson, New York: There seems to be a healthy recognition of the limitations of modern methods of diagnosis; as yet we have not come to know just how far they can be depended on. One must consider both the sample of feces and the clinical history and, in case of doubt, the latter should dominate in our decision. One point in particular in an examination of the feces should be emphasized and that is: Of what do the feces actually consist? Two-thirds of the feces consists of the secretions of the glands of the lower half of the remaining third of bacteria intestines. The 85 and 95 per cent. of the food that is properly digested does not appear in the stools. Only the 5 per cent. of husks, bran, fibers, seeds, etc. No wonder we gaze perplexedly at the odoriferous mass, trying vainly this, that or the other food substance. Our surgical friends called attention to experiments made in the Columbia University laboratory two years ago on the various forms of intestinal suture and closure. They cut off and sutured the ends of a loop of the small intestines in such a way that it was still connected with its blood vessels, but cut off from the lumen of the food canal. In four or five days this loop of intestine was found to be packed with apparently normal feces secreted by the glands in its mucous lining. A large part of the feces in a normal individual bears no distinct or definite relation to the food at all, only such parts of it as have escaped digestion. The recognition of mucus in the stools is most important, it is a secretion always abnormal in appreciable amounts and indicative of some neurotic disturbance in the individual. I have seen four patients with mucoenteritis who had been operated on for appendicitis; one woman was about to be operated on a second time and was only saved when the surgeon saw the scar of the previous operation. Colica mucosa is an urticaria of the bowels, as asthma is an urticaria of the bronchi. Mucus in strings, flakes and spirals and the intestinal sand, so-called, may be compared with Curschmann's spirals and Leyden's crystals found in asthma. In both diseases relief is best obtained by attention to the nervous system, especially the vasomotor. Place a patient with a mucoenteritis in bed, feed liberally and leave the bowels alone, especially avoiding cathartics, and more will recover than if any intestinal treatment be employed.

OPERATIVE TREATMENT FOR CIRRHOSIS OF THE LIVER *

GEORGE DOCK, M.D.
NEW ORLEANS

Operative treatment for cirrhosis of the liver has engaged the interest of many physicians and surgeons since Talma proposed it twenty years ago. If it is not more frequently carried out, the reason may partly at least be found in the high mortality immediately following the operation or within the next two months. I shall not attempt a new statistical study, since this has been done well by several others within a recent period, but shall point out certain facts that need to be considered in connection with all novel operations and especially for those in diseases inevitably fatal, for alleviation of symptoms, and not with a view to radical cure.

The statistics of the Talma-Morison operation and its modifications and substitutes are unfavorable partly because many patients have been operated on too late to do good, and when the risk of failure was excessively great on account of other organic disease. Such a thing happens in all new operations, but, instead of stopping operative treatment altogether, it should, if the operation has a single thing in its favor, lead only to more careful selection, earlier diagnosis, and greater care in the operation and after-treatment. Moreover, the death-rate and the shortening of life must not be compared with similar incidents in persons previously healthy, or persons with trivial diseases. As in so many other border-line diseases, we should think chiefly of the pain and disability, and the inevitable death within a time not very long, under the usual methods of treatment. From that standpoint, a single patient made comfortable for a time beyond the usual expectation outweighs many others whose days may have been lessened, though they lost nothing they ever could have gained in function. In such a case, it seems only fair to put the matter as plainly as possible before the patient, and to let him decide. Many, in the particular case now before us, will prefer the cathartic and the trocar, just as many others will refuse to stop the injurious habits against which they are warned. Some, however, will prefer a definite risk with the hope of relief, and it is in order to show what may be done even under many disadvantages that I bring the subject up at this time.

I have long been interested in the subject, but in most cases could not get the patient and surgeon to coincide. In some cases the one, in others the other, demurred. In one case I found what seemed an ideal subject, a man with recently developed ascites and distinct but not severe symptoms of cirrhosis, no cachexia, and no anomalies in the urine. Paracentesis gave a characteristic fluid and showed the liver not enlarged. After the situation was explained to the patient, he chose an operation, which was performed by an experienced surgeon with every appearance of technical accuracy. The liver was moderately cirrhotic, the spleen enlarged, the veins in the omentum and under the parietal peritoneum distended. Death occurred on the third day from septic peritonitis. Such an event is always discouraging, and it gives me all the greater pleasure to report another case in which the duration of life and maintenance of function seem unmistakably lengthened, notwithstanding many adverse circumstances. I cannot claim any credit for the result, which the patient owes to Dr.

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* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Edward Hamilton, of Houston, Texas. I simply have taken advantage of a clinical experiment, with the hope of encouraging others by the lesson it teaches.

REPORT OF CASE

Summary.—Symptoms of cirrhosis of the liver, with ascites following a history of hard work and hard drinking; patient tapped for ascites fourteen times, then had omentopexy, in December, 1902; was tapped ten times after that, up to June, 1903, and since that time has been able to do hard work, only at long intervals having symptoms, which are easily relieved by medicine.

History.—E. D. S., aged 49; single, railroad switchman, American, was admitted to the Charity Hospital, New Orleans, Jan. 7, 1909, on account of fulness of the abdomen, pain in the stomach, vomiting of a large quantity of blood, and tarry stools. The family history is unimportant. The patient had smallpox and gonorrhea at the age of 30, and during the next eighteen years several mild attacks of malarial fever. In 1892 he was shot while aiding the Cuban patriots, a rifle-ball going through the abdomen transversely just below the liver, but not near the portal vein, as indicated by the scars. There was constant oozing for twenty-four hours, but in a week the wounds healed and the patient had no further trouble from them. The patient has worked on railroads and in the oil fields, working hard most of the time, and exposed to risks from bad food and water, and malarious climates most of the time. He has chewed tobacco since the age of 10. He drank regularly but moderately up to fifteen years ago, when he began to get drunk about every four months, spending on drink all he had saved in the interval. The periods of intoxication averaged five to ten days, but were sometimes prolonged to two to four weeks. In 1902, while working in the Texas oil field, with poor food and great exposure, he began to feel bad, drowsy and tired, and developed a severe diarrhea which resisted treatment. In about three weeks the abdomen became swollen, and he then went to St. Joseph's Infirmary, Houston, Texas, for treatment. He was under the care of Dr. Edward Hamilton, to whom I am indebted for information regarding the operation, and also for the privilege of reporting the case. The diagnosis was cirrhosis of the liver. The ascites was severe, the abdomen measuring 45 inches when full, and tapping had to be done at short intervals—six to ten days. After he had been treated three months, and tapped fourteen times, the patient followed Dr. Hamilton's advice regarding an operation. "The abdomen was full of fluid, the arteries and veins of the omentum and peritoneum enormously distended, and the livér hard and nodular. The omentum was sutured with catgut on each side of the wound to the parietal peritoneum. The patient made a good recovery, but had to be tapped ten times during the next four months, and left the hospital in June, 1903, six months after the operation." Six months later he appeared before Dr. Hamilton in order to undergo an examination as brakeman, " and would probably have passed if it had not been for the scars on his abdomen." (The quotations are from Dr. Hamilton's letter.) The abdomen then measured 32 inches. The patient worked in a malarial locality, had numerous attacks of fever, for which he took whisky, and from about five months after the operation he had again taken up the habit of frequent intoxication. In 1905 he had diarrhea, shortness of breath, distention of the abdomen and all his previous symptoms. After trying with no benefit the waters of various mineral springs, he came to the Charity Hospital, and left much improved after two months, having been treated with purgatives, principally jalap. He then remained perfectly well, working as switchman, until October, 1907. Then, having been drinking regularly, he had a return of symptoms, and a hemorrhage from the stomach, and returned to the Charity Hospital, under the care of Dr. John B. Elliott. There was moderate ascites, anemia, and slight icterus. The liver dullness was small; the organ could not be felt. Treatment with compound jalap powder again was followed by complete relief of symptoms, and the patient was able to do hard work again, carrying loads of 150 pounds. Later, a return of malaise and bad taste in the mouth led to drinking. This became worse in the fall of 1908, and a few days before the last admission the abdomen again grew large, there was pain after eating, and the stools were black but became natural before admission.

Examination.—On admission I found the patient almost free from subjective symptoms; temperature, pulse and respiration normal. There was slight emaciation, cachexia, skin was sallow, scleræ not yellow. The heart was in the normal position, the sounds weak but clear, the radial arteries tortuous. The lungs were negative; diaphragm shadow from the sixth to the seventh intercostal space on the right side: the seventh to the eighth on the left. The abdomen was slightly enlarged, one and a half inches above the level of the ribs. The superficial veins running up the middle of the abdomen, continuous with those on the thorax, were slightly enlarged. There was a scar in the median line, 7 cm. long, extending from 3 cm. above the umbilicus. This lay above an oval elevation, corresponding to a soft irregular mass beneath and adherent to the abdominal wall. The liver could be felt; the dulness was small. The spleen was slightly enlarged and hard. There was movable dulness in the abdomen, rising to the umbilicus on standing. There were no hemorrhoids. Urine and blood were negative.

Later Course of Disease.—Treatment was again carried out with compound jalap powder, by my colleague, Dr. J. B. Guthrie. There were no stomach symptoms and no blood in the stools. The distention subsided, though the superficial veins remained enlarged. After a short time the patient was able to assist in the ward work. He was then given a position in the pathological laboratory, later made night-doorman, and has remained well up to the present time.

I can not add anything to the theory of the effect of the operation. I am inclined to agree with Rolleston in attributing the benefit chiefly to the lessening of venous pressure, enabling the liver to deal more readily with the toxic substances passing through it, the improved arterial circulation following the reduction of venous pressure, and the greater chance of compensatory hyperplasia. So far as the ascites is concerned, it seems that in many cases the improvement of that may be due more to the effect of the operation on the serous membrane than to the opening of collateral paths for the blood.

From every point of view it is desirable to operate early, before the liver has undergone advanced degeneration, and before toxemia and disease of other organs have made the operation too dangerous. As to the details of the operation, I shall not discuss those that have been proposed by surgeons, but confine myself to the suggestion that in all cases the abdominal organs should be examined as carefully as possible, in order to furnish data of value in the analysis of future cases.

In view of H. Eichhorst's recent recommendation of cream of tartar[1] for cirrhosis, it is interesting to see how well the compound jalap powder seemed to do in the case now reported, taking down the ascites rather better, it seemed to me, than usual. Cream of tartar is an ingredient of compound powder of jalap, and has been much used alone as a laxative in such cases.

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ABSTRACT OF DISCUSSION

Dr. Nathaniel Bowditch Potter, New York: I should like to speak of a patient operated on by Dr. George E. Brewer of New York at the City Hospital six years ago. The patient has been in my service at either the City or French Hospital nearly every year since the operation. This patient's life undoubtedly has been prolonged over five or six years.

Dr. Albert E. Roussel, Philadelphia: My experience with cases of this kind has not been so satisfactory as those that have been reported here. I have had under observation at different times probably eight or ten patients who have been operated on, and in those with distinct cirrhosis of the liver, with two exceptions, there has been no benefit. I think we should take into consideration the fact that occasionally the mere operation of tapping will result in establishing a compensatory circulation and enable the patient to live for a considerable period of time in fairly comfortable condition. I have such a case in mind now; in this case I made an unfavorable prognosis. After the first two tappings in which two gallons of fluid were removed, the patient, a woman, remained in good health for a period of five years. To be sure, these are exceptional cases, but they do occur, and consequently they should be borne in mind when the advisability of an operation is considered. Another very important point that should be borne in mind is that many of these patients have cirrhosis of the liver long before they come to us because of the ascites. In making examinations for life insurance, we know that there are a number of instances in which men, especially club men and individuals over 40 years old, have relatively large livers; very often such an enlarged liver is the early stage of atrophic cirrhosis or of fatty cirrhosis of the liver; but rarely is it, as often imagined, hypertrophic cirrhosis, which is a very rare disease. By careful dietary treatment in the early stages of the affection, by a removal of the cause, such as alcohol or over-eating, the process may be delayed for a very great period of time. It is unfortunate that no visible evidences of the disease can be demonstrated to the patient, such as albumin and casts, which appear in the urine, showing an interstitial nephritis. When this does occur in the last-named disease, however, the patients are really frightened, and they then may mend their ways. We know that people may have enlarged livers without having any definite symptoms pointing to the trouble. I think it is up to the man of the future to make a diagnosis of cirrhosis of the liver before the circulatory and toxic symptoms make their appearance; then medical and perhaps surgical treatment will give different and better results.

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[1] Eichhorst, H.: Med. Klin., 1909, No. 11.

Dr. Charles A. Hoover, Cleveland: I should like to report one case. This patient was under observation thirteen years ago at the City Hospital in Cleveland. The man was tapped I believe about fifteen times at the hospital. The resident physician was in the habit of doing the paracentesis. When he completed his service at the hospital he went to practice in a neighboring town. This man with the ascites liked the manner in which the retiring physician had done the work, and so followed him to the town in which he started to practice. The doctor was in the habit of doing the operation once in about five days. One morning the patient with distended belly visited the physician in his office and requested a paracentesis. The doctor was busy at the time and said he would tap him that afternoon. But at noon the patient had a profuse hemorrhage from the bowels, losing great quantities of blood. Two hours after losing so much blood the man was very blanched; when the doctor arrived a friend of the patient was at the bedside, who said: "From my observation it seems strange to see him so bloodless, and yet he appears to have such a good pulse." The man died from anemia that same night. An autopsy was performed on the following day and the abdomen was found to be dry; every bit of the serum had been absorbed. Judging from the repeated tappings that had been done, not less than five liters of serum had been taken up. There was absolutely nothing here excepting the usual venous anastomoses and the lowered intravascular pressure to enter into the rapid absorption of fluid.

Dr. Samuel E. Munson, Springfield, Ill.: Dr. Hoover's report of his case reminds me of a man, 60 years old, who had hepatic cirrhosis accompanied by tabes dorsalis, and who developed dropsy. For a period of almost one year I performed paracentesis about every seven or ten days. Sometimes I removed as much as six gallons of fluid. After a period of time following these tappings, the fluid disappeared and did not recur again. This man lived two or three years afterward. Death was due to tabes dorsalis.

Dr. Joseph L. Miller, Chicago: I have seen two cases of so-called cirrhosis of the liver cured after a few tappings. In one case it was found that the patient was suffering from tuberculous peritonitis. The second patient was supposed to be cured, but returned in a few months with a tuberculous peritonitis. It is my opinion that some of these cases of so-called cirrhosis of the liver reported cured by tapping are really cases of tuberculous peritonitis.

Dr. George Dock, New Orleans: It is very important to remember that ascites and cirrhosis of the liver do not mean the same thing; there may be cirrhosis of the liver without ascites. In any case we must not suppose that the ascites is the result of cirrhosis of the liver; this does not always follow. Many cases are diagnosed as cirrhosis of the liver and reported as cured by operation, or cured after repeated tappings, that are found afterward to be cases of tuberculous peritonitis or some other form of peritonitis. The advantage of an operation, however, is that it enables one to make an accurate diagnosis. Dr. Hoover's report of his case is very interesting; but I would like to point out that often the ascites disappears without known cause and without treatment. I reported a case some years ago in which a patient was prepared for tapping to be done a few days later, and then there was nothing to tap for. The abdomen was flat and there were no signs of fluid in it. Two weeks later this patient died and no fluid was found in the abdomen. There was a secondary cancer of the peritoneum. With regard to whether the operation does any good in these cases, that is something I know no more about than anyone else. But the results of the operation, such as reported by Dr. Potter and others, and the results published in the literature, shown by improvement and sometimes recovery, we cannot get around. For a certain period of time there is no doubt that in some cases good results follow the operation. Dr. Rolleston's idea is that improvement in the circulation followed such an operation, thus enabling the patient to withstand the disease longer than he otherwise could. Talma discovered on the autopsy table that in those cases which pursued a favorable course in cirrhosis of the liver, new vessels had spontaneously formed which were capable of carrying on a collateral circulation. I have seen such a condition in a patient operated on a second time by Dr. Roswell Park. The vessels were enormously developed. I think that the major part of the benefit of the operation comes from changing the process in the peritoneum. Whether there is such a change as occurs in Bier's hyperemia treatment, I do not know; but the hyperemia may be an important part. In patients having a great deal of ascites and without much change in the liver, I should prefer having the operation done. My colleague, Dr. Matas, is now looking for a patient on whom he can make a direct anastomosis of the abdominal veins and send the blood around the liver. Such an operation as he proposes promises a great deal.

THE EPIDEMIC OF SPINAL DISEASE IN NEBRASKA

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It is the purpose of this paper, in order to answer many of the questions asked in letters from physicians over this and neighboring states, to chronicle a few interesting facts relative to the epidemic of spinal disease now prevalent in Nebraska and variously diagnosed as cerebrospinal meningitis, acute anterior poliomyelitis, myelitis and meningitis.

The recognition of the epidemic in new neighborhoods is important, first, on account of its infectiousness and contagiousness and the consequent necessity of early and immediate quarantine; second, because of the relatively high fatality and the question of the possibility of using Flexner's serum; and, third, because new and interesting facts concerning poliomyelitis and meningitis of epidemic variety may show the necessity of disregarding at times the things we have been taught in favor of unmistakable clinical evidence to the contrary.

BEGINNING OF EPIDEMIC

About July 4 an epidemic of spinal disease of some sort was recognized in and about Stromsburg, Neb.

The malady seemed confined, in the main, to children under 10, many of whom showed unmistakable meningeal symptoms.

There was a consultation of physicians on several cases, and the diagnosis of acute poliomyelitis made in one case and cerebrospinal meningitis in several others. According to most common text-books and authorities, neither disease was quarantinable. There was a Fourth-of-July celebration with excursions from the surrounding towns and counties. By July 15 many cases began to be reported from the neighboring towns and country. By July 20 one physician alone reported having had over one hundred cases. About this time the State Board of Health met in special session, and on account of the rapid spread of the disease ordered a three weeks' quarantine of all but the bread-winners of the affected families. In another ten days it had reached York, twenty-five miles away, whence it has spread over the entire state. The quarantine was then made absolute.

The following are illustrations of the manner in which the disease spread:

A woman from York had taken her child with her to the wedding of a sister at Stromsburg, about the Fourth of July, in a house where a younger sister had had the disease and was yet partially paralyzed in the lower limbs. The woman returned to York, and in nine days another of her children, a boy of 5, came down with a fever lasting three days. It was diagnosed as rheumatism. The fever fell by crisis and the boy's left leg became partially paralyzed. This was the first case in York. Next door there lived a family of six children. They began to have, one after another, slight fevers and developed similar symptoms. One had a partial paralysis of a leg, one of an arm and one of both legs; three had common symptoms, but no paralysis. A washerwoman brought her baby, allowing it to romp and play with these children while she worked. In five days it became ill, developed meningeal symptoms and died three days later with bulbar paralysis. Another child, a block east, contracted the disease, had paralysis of both legs and arms and, after two weeks of painless lingering, developed bulbar symptoms and died. At this time quarantine was established in York, and the malady checked. Later it was brought into the city again from outside and again mastered by a strict quarantine.

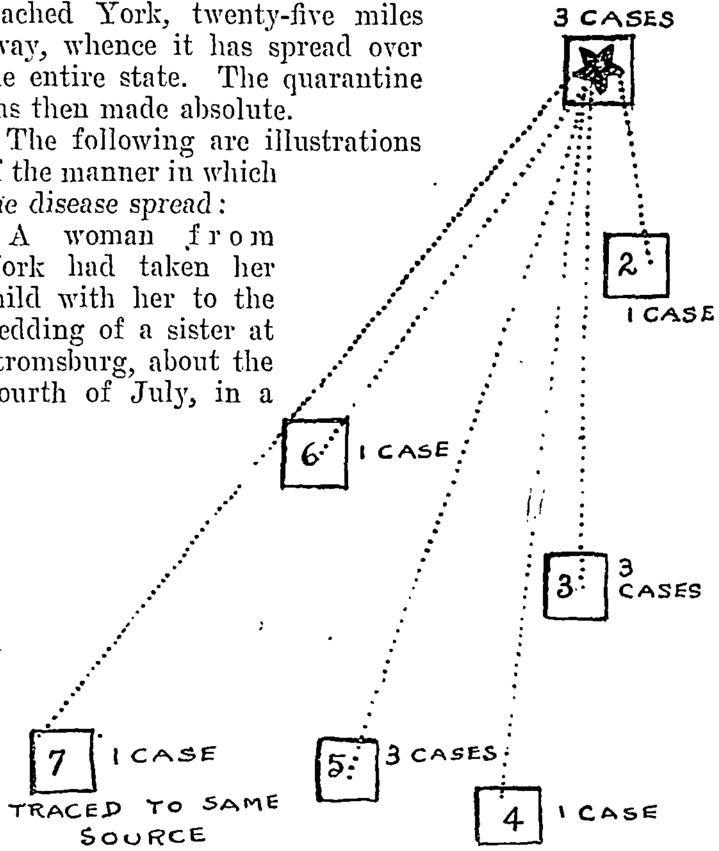

Fig. 1.—Diagram of course of infection among the members of a threshing crew near Benedict. Star indicates the house which was the source of infection in these cases.

Figure 1 shows diagrammatically the development of the disease near Benedict, Neb. At the house marked by a star there were three patients, one a nursing baby a year and three months old, one a girl of 12 years and a lad about 19 years old. The baby recovered from a slight paralysis of the arm. The girl, who had paralysis of both legs and arms and could not turn in bed, has recovered the use of her arms, but has contractures of flexors of the legs which prevent her from standing or walking. The lad suffered only a slight indisposition for several days in the way of general aches, pains and stiffness of neck with a low temperature. He worked during this time. About fifteen rods from this house stands another farmhouse. A young fellow, a chum of the first, lives here. He developed the disease like the others with no visible paralysis. Both of the young men were on a threshing crew exchanging labor with seven other men ranging in age from 15 to 30. These men drank out of the same jug, worked hard in the hot sun together, ate at the same table and developed the disease, one after the other. One of the young men, aged 18, died. There were two 30 years of age infected.

The disease spread from Benedict to Marquette and elsewhere in the following manner:

A child came into Benedict from near Polk, Neb., and was taken ill; it returned to the country, where the case was diagnosed as epidemic spinal disease. The 12-year-old daughter of the family next had the malady at home. Several weeks later the son-in-law of the parents of the affected children came from Marquette, Neb., with his infant son and visited over night. In five days the infant came down with the disease, this being the first case in Marquette. A child of another family came in from the country to the house of the above-mentioned family in Benedict about a month later, not having been allowed by its parents to see any other child all summer. She stayed one night at this house, returning home in the morning. In five days, that is, on the first day of school, she became ill, and after three days' fever developed a paraplegia of both legs.

In another instance, occurring in York, Neb., at place marked by a star (Fig. 2), a boy, aged 8, developed what were diagnosed as typhoid symptoms—coated tongue, stair-step rise with higher evening temperatures and several days of prodromal malaise. The case was reported by neighbors and quarantined after child had developed paralysis of both legs. Before this, however, there had been a general exposure of the neighborhood. A child came to visit next door, at house marked 2, looked at some fish in front of the house with the sick child, next day went out in the country fourteen miles and in due time developed double leg paralysis after four days' temperature. The first child recovered after three weeks; the second child recovered the use of one leg after five weeks; the other leg developed atrophy with no electrical reaction and with a quadriceps femoris and tibialis anticus paralysis. The child hobbles about without aid of crutch or cane. On the other side, at house marked 3, 18-months-old boy had a fever for two days with partial paralysis of one leg and later complete recovery. Across the street, at 4, another infant, 16 months old, at the breast, developed paralysis of left leg. The parents attributed fever of one day's duration to teething. At 5 another infant became ill and after paralysis of several weeks developed a hypostatic pneumonia and died. These cases were all in a thickly settled Russian neighborhood. The children who were affected later had been with the first child when he had had his fever.

And so I might relate series after series of cases to prove that this epidemic should be quarantined, that it is infectious and probably contagious. One physician reports fourteen cases in which the infection was traced in every case. One physician reports that his two children had the disease. One child recovered; the other has yet a paralysis of one leg. I have emphasized this at the length I have because there is nothing said about quarantine in the common text-book, and it is the most important measure we have at our command to defend our children.

DESCRIPTION OF THE EPIDEMIC

Sixty cases have been chosen in a series as they came and studied. They are used throughout except in "Number of Cases in a Family," where purposely ten extra single cases occurring in families of more than one child were added to forestall the argument that, because single cases happened so often in families of more than one child, the disease was not contagious or infectious and, therefore, should not be quarantined.

Period of Incubation.—This could not be determined in many cases; in several cases it was five days; in several, eleven to thirteen days, probably depending in large part on the susceptibility of the patient, the resistance to infection and the virulence of the infecting organism, all unknown quantities.

Age.—It will be noted from the tabulated statement below that 25 per cent. of the patients in the series are under 3 and 20 per cent. over 10 years of age. The last fifteen cases in the county, which are not included in this series, are of a much higher age throughout.

Age. Years.	No. Cases.	Age. Years.	No. Cases.
Under 1	9	7 to 8	5
1 to 2	2	8 to 9	4
2 to 3	7	9 to 10	4
3 to 4	4	10 to 15	6
4 to 5	4	15 to 20	5
5 to 6	5	20 to 30	4
6 to 7	1		

Sex.—Twenty-nine patients are females and thirty-one males.

Time of Year.—All these cases have occurred in July, August and September.

Number of Cases in Family.—Thirty-one per cent. of these cases occurred as single cases in families having more than one child. Forty-four per cent. occurred in families in which there were two or more children, all of whom acquired the disease. Four per cent. occurred in families where there was a single child. Sixty-four per cent. of the cases occurred in families where there was more than a single child in the family.

Single cases in family of one child	3
Single case in family of more than one child	22
Two cases in family of two children	6
Two cases in family of more than two children	6
Three cases in family of three children	15
Four cases in family of four children	4
Four cases in family of five children	4
Four cases in family of six children	4
Six cases in a family of six children	6

Previous Health.—Most of those afflicted have been in fine health previously—are fat country children, having had the benefit of plenty of sunshine and fresh air.

Sanitation.—In large families where hygiene and sanitation are disregarded there seemed to be a slight tendency for more of the members to be affected. Most of the patients, however, had clean, well-kept homes.

Various Factors.—Teething seemed to have no effect on acquiring the disease. Injuries do not predispose. Overwork seemed to be a factor, especially in the cases of the young men who threshed in the hot sun.

Symptoms.—Temperature: The onset is usually sudden. The child is noticed to have a fever of varying heights, usually moderate, and to feel suddenly tired with a change of disposition; refusing to play or eat, although in very few cases the restlessness at night or pain on movement is the first thing to attract attention. Once the initial symptom of a 10-year-old girl was an inability to see down a post hole when she stood close to it, because of the stiffness of the neck muscles. Occasionally the parents notice that for several days the child has not seemed natural. In several cases there was no fever noticed—nothing unusual until the child limped or could not walk or raise its arm. Only once was there an initial chill reported. The temperature seems to be higher in smaller children and in fatal cases, although in one fatal case there was a temperature of 101 F. for twenty-four hours preceding death. As a rule early severe symptoms give a higher temperature. As to the duration of the fever, two-, three- and four-day temperatures seem to be the rule, falling in twenty-four hours by crisis.

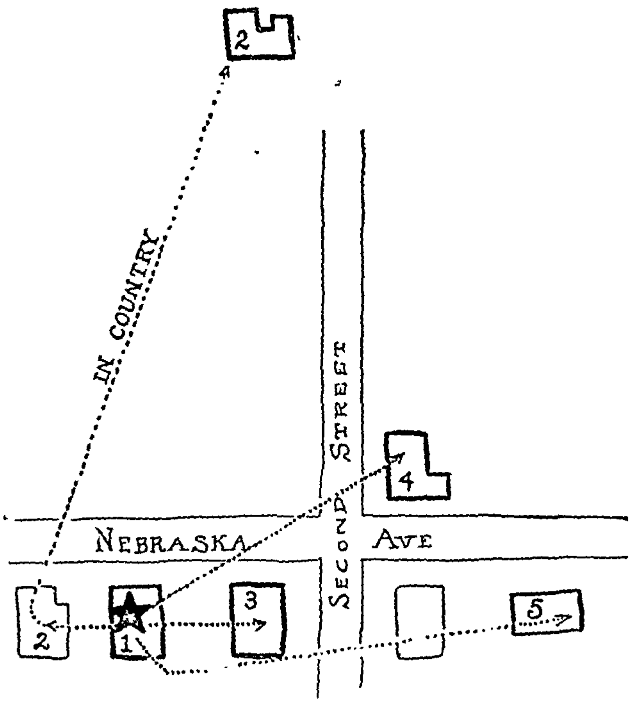

Fig. 2.—Map showing course of infection in York, Neb. Star indicates house where disease first developed.

Duration.	No. Cases.	Duration.	No. Cases.
1 day	7	4 days	14
2 days	16	5 days	7
3 days	14	6 days	2

There has been in lingering cases a secondary rise due to other causes, in three cases to pneumonia. These should not be confused with the original infection temperature.

Condition of Bowels: Diarrhea may be present, but constipation is the rule. Occasionally nothing has attracted attention to the bowels. In a few cases there was vomiting, but that was the exception, surely not the rule.

Paralysis: The worst paralyses have occurred in children from 8 to 12 years of age when the disease has not proved fatal. The localization is tabulated as follows:

No paralysis	10
Incoordination	11
Both legs	16
Right leg alone	2
Left leg alone	1
Supinators of arm	4
One arm and one leg (same side)	2
Both arms and both legs	6
Deltoid and pectorals	2
Deltoid alone	2
Intercostals	2
Abdominal muscles	2
Bulbar paralysis	6

It will be seen from this that in a large percentage of cases there was no paralysis and in another large class merely incoordination existed. These cases occurred in families where other members of the family had paralysis and the same infection was present. Both legs seem to be the most common paralysis, with both arms and both legs next in frequency. The paralysis is flaccid and only in three cases was there any spasticity noted in arms or legs other than the knee symptoms elicited by the Kernig manipulations. A Babinski was not always tried for, but was never found present when the test was made.

Reflexes: These are generally sharp or exaggerated during the fever; absent after the fever in paralytic cases.

The reflexes are diminished or absent according to the degree of paralysis, and return with the return of function of muscles.

Other Signs and Symptoms: Often there are pink lines under the eyes, running from the inner canthus outward and downward to the malar bone. There is usually some stiffness of the neck muscles, occasionally slight retraction of head, even in mild cases. Under subjective symptoms a basilar headache comes first and most important. It is almost constant. There is often pain in the back of the neck. General hyperesthesia of back and limbs is frequently present. In the more marked cases and as the disease progresses to the second, third or fourth day or to the temperature crisis there is generally a modified Kernig's sign present in that flexion of the thigh on the body with an extended leg will give unusual pain under the knee in the hamstring tendons. Often the leg cannot be straightened even with the back bent. The thigh may be flexed on the body with the knee bent. Especially is this sign present if the limbs are to be paralyzed. Retraction of the head or perfect rigidity of the neck muscles is noticeable in the more severe cases. The pain along the spine increases in some cases and there frequently develops an almost intolerable hyperesthesia. Among the unusual symptoms noted in over two hundred cases were strabismus once, opisthotonos several times, formication once, numbness once, photophobia once, sphincteric paralysis thrice, and bulbar paralysis.

Prognosis.—Recovery seems to be good in mild cases, improvement beginning in a few days to a week and recovery becoming established in three or four weeks. Most of the more seriously affected patients do not recover. There is usually a slight improvement, but finally atrophy of certain groups appears well marked, a grim reminder of the dreaded disease. The most frequent atrophy occurs in the deltoids, pectorals, quadratus femoris and tibialis anticus muscles. The number of deaths in this series was 7, or 11 per cent. Out of upward of 200 cases in York County there has been a mortality of over 7.5 per cent. The first cases about Stromsburg were not so frequently fatal. The last unincluded cases have had a higher rate of fatality.

Differential Diagnosis.—As to the differential diagnosis I shall mention some of the things encountered in this epidemic.

Trauma: Injuries ("fell against water-tank," "fel out of swing," "ran a tack in his foot") are insisted o by the parents to account for the leg symptoms. I mild cases the temperature alone will differentiat between the epidemic disease and trauma, provided th wound is not lacerated or infected. There is the location of the muscle paralysis and the probable injury t be investigated. Chance for infection will sometimes aid

Tonsillitis: Three times cases were diagnosed as tonsillitis because the pharynx and tonsils were red an swollen and a general soreness, fever and slight stiffnes of the neck present. A high polymorphonuclear leucocytosis would favor tonsillitis. A tonsillar history migh be a deciding factor. Later when the fever falls and th paralysis supervenes the diagnosis is cleared up.

Typhoid Fever: The *differential diagnosis* betwee typhoid and the spinal epidemic should offer no seriou difficulties, because of the rapid onset, earlier time o year, negative Widal, longer duration of disease, earl fall of temperature by crisis, absence of rose spots, n bronchitis, good appetite after subsidence of fever, an paralysis.

Colds, Commonly Called Grip: These, as a rule, lac the nervous symptoms, rigid neck and history of infection. They come on after exposure in cold, dam weather, and more often in older people. In grip ther is no modified Kernig and no paralysis.

Rheumatism: The facts that in rheumatism there i usually a history of previous attacks and joint involvement with redness and swelling, but no muscular paralysis in children, and that salicylates are efficacious, would be sufficient to differentiate. The presence in both conditions of swollen tonsils and joint pain and general tenderness calls for careful diagnosis. In all these case the presence of organisms of any sort in the spinal fluid would be a deciding point.

Diphtheria: This might call for a differential diagnosis in the paralytic stage. The history would clear up the diagnosis in most cases.

Nature of the Epidemic.—A transverse myelitis or a multiple neuritis would hardly be seriously thought of. The final diagnosis resolves itself into acute anterior poliomyelitis, meningitis or cerebrospinal meningitis. I have made fourteen lumbar punctures. Specimens were withdrawn according to the technic of von Quincke. Hand centrifuge, microscope and stains were taken to the homes. Only one sterile fluid was obtained, and in that case the puncture was done four weeks after the temperature had subsided. Wright's stain was used for all smears. In nine cases what appeared to me to be a Gram-positive coccus was obtained and in three a diplococcus, but never intracellular. The fluid was clear as water in every case but one. This fluid was slightly turbid and showed the only polymorphonuclear leucocytosis. In fact, the others showed a lymphocytosis. In three cases the tension was notably increased, the fluid spurting in a stream from the needle, showing a meningitis. Cultures were made, but the possibility of contamination in transit prevented exact conclusions. Animal experimentation and more careful bacteriological work, I hope, will clear up the organism.

The clear spinal fluid, the comparative rarity of cerebral symptoms and the relatively low death-rate almost completely banish, to my mind, the diagnosis of cerebrospinal meningitis caused by the *Diplococcus intracellularis meningitidis* and, therefore, the possibility of using Flexner's serum in therapeutics. The possibility of its occurrence, even in the midst of an epidemic of something else, should not be forgotten, however.

To be sure, there are in this disease meningeal symptoms, but nothing that a simple meningitis caused by some unknown organism could not explain. The fact that in every acute case organisms have been obtained shows that there are bacterial toxins to produce degeneration of the cord and to inflame the cord membranes. Is it not a logical and scientific hypothesis that in this disease the simple meningitis and the poliomyelitis may be caused by the same thing, and that sometimes the infection of the meninges may predominate and at other times the infection of the gray substance of the cord? The mortality is too high for poliomyelitis of the commoner text-books. The percentage of recoveries without atrophy is not according to text-book description. But could we not find organisms differing from all those in the past epidemics if not in kind, in characteristics, which would produce an anterior poliomyelitis and a meningitis? Is it not natural to suppose that in most cases, on account of the blood-supply and the proximity of the membranes to the cord substance, the two infections go hand in hand and that, while poliomyelitis may leave the predominating lesion usually, at any time it would be possible for the meningeal symptoms to appear uppermost?

I wish to thank the doctors of York County who have kindly cooperated in studying this epidemic.

106½ East Sixth Street.

JONNESCO'S ANALGESIA METHOD

JOHN J. MOORHEAD, M.D.
Instructor in Surgery, Postgraduate Medical School and Hospital; Attending Surgeon, Red Cross Hospital; Assistant Visiting Surgeon, Harlem Hospital
NEW YORK

By reference to Jonnesco's article,[1] "Remarks on General Spinal Analgesia," it appears that he first advocated this method before the International Society of Surgery, in Brussels, September, 1908, when he reported fourteen cases "by my new method . . . " (addition of strychnin to stovain). At the German Society of Surgery, in Berlin, April, 1909, Professor Bier (Berlin) declared that the method must be rejected; and Professor Rehn (Frankfort), at the same meeting, stated that animal experiments demonstrated considerable danger in injections higher than the lumbar region.

In explanation of this hostility, Jonnesco says that, as he expected, the method would be considered ". . . too novel and too hardy to be accepted without opposition . . ." and he adjures his critics not to be condemnatory on *a priori* grounds, predicting that ". . . my new method of general spinal analgesia will in a short time be universally accepted. . . ." He adds that since October, 1908, he has used this method exclusively in his private and public operations, and he claims to have convinced Professor Schauta (Vienna) of its merits by personal demonstration.

The article then goes on to explain the method of preparing the strychnin sulphate and stovain, with the proper dosage according to the age and general physique of the patient. He advocates only two spinal zones for injection; namely, a "superior" (or "high") between the first and second dorsal vertebræ, and an "inferior" (or "low") between the twelfth dorsal and first lumbar vertebræ. The former, he claims, is efficient in producing analgesia of the upper part of the body, including the face, head and neck; while the latter permits operative manipulation on all parts approximately below the waistline, and is especially helpful in laparotomies because it produces what he terms "abdominal silence."

SOME STATISTICS

His total number of personal cases by the "new method" is 412; of these, 117 were high and 295 low injections.

After-effects were notably absent, he says; nausea being noted in 2.25 per cent.; vomiting ("a single effortless ejection") in 1.25 per cent.; sweating in 2 per cent.; headaches in 6.25 per cent.; transitory retention of urine in 4.5 per cent.; in no case did postoperative temperature reach 104. He never saw any paralysis.

The duration of analgesia in the high injections is about forty-five minutes; in the low, from an hour and a half to two hours. A second injection is given if the operation is not completed within the above periods. He relates cases in which at first he failed to produce the desired effect because he did not enter the arachnoid space in the mid-line; or because the patient made an involuntary movement at the instant the needle was felt, thus deflecting the latter. He, however, has never failed to produce analgesia, although in some cases many attempts are necessary (see below).

This article is illustrated by four large photographs, two of them showing Jonnesco performing his high and low injection, respectively.

During his visit to this country, and up to Dec. 29, 1909, Jonnesco says that he has effected twenty-three spinal analgesias. Eleven of these were in New York hospitals; five in Philadelphia; three in Chicago, and three at Rochester, Minn. (State Hospital). Seven of these were superior dorsal and sixteen low dorsal injections. Commenting on these cases in a letter to the *New York Medical Journal,* Jonnesco says he regrets that newspaper reports make it appear that he claimed to have discovered medullary narcosis; on the contrary, he disclaims any intent to rob Dr. J. Leonard Corning of this city of that honor. Neither does he claim to have discovered stovain or strychnin; but he does assert that his method of combining these drugs is new and original with him, as is his introduction of them into the two spinal zones already mentioned.

ANALYSIS OF AN UNFAVORABLE CASE

In this letter he explains the unfavorable outcome of the high injection given in Case 3 at the Post-Graduate Hospital (osteoma of left frontal region) on the theory that the patient was an epileptic and had a bad cardiac lesion; adding that ". . . Immediately after the operation began, he [the patient] had an epileptic fit which lasted throughout the whole operation. This should be enough to explain a momentary cessation of the respiration, but the heart never ceased beating and a few moments of artificial respiration were enough to bring him around again. The delirium which appeared after the operation is simply an epileptic delirium, and I cannot understand how anyone can think it was produced by the anesthetic. . . ."

This statement is in marked contrast to the report of the case as given[2] by Dr. Aspinwall Judd, who assisted Dr. Judd makes no mention of an epileptic fit which Dr. Robert T. Morris at the operation, and certainly it does not accord with my observations of the occurrence.

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[1] Brit. Med. Jour., Nov. 13, 1909, p. 1396.

[2] New York Med. Jour., Dec. 25, 1909.

Dr. Judd makes no mention of an epileptic fit which began at the time of and lasted throughout the operation, nor did I witness any such incident. Respecting the "momentary cessation of respiration" it appears from Dr. Judd's report that the operation lasted twelve minutes and that respiration thereafter was very seriously interfered with, and that it required heroic treatment for twelve minutes before respiration was re-established. Those who observed the patient after he left the operating room would hardly agree with Jonnesco in terming the case one of "momentary cessation of respiration"; nor would he have any supporter in his statement that ". . . a few moments of artificial respiration was enough to bring him around again . . . ." This patient had a wild delirium an hour after, requiring a strait-jacket for two hours, the delirium recurring at intervals until the following morning. Jonnesco says that this was an epileptic delirium and ". . . cannot understand how anyone can think it was produced by the anesthetic . . . ."

The consensus of opinion respecting this case was that the high injection was exceedingly dangerous, and that the analgesia was far from complete and was responsible for the almost fatal collapse of the patient.

A HISTORICAL SUMMARY

Spinal anesthesia was demonstrated by Corning of New York in 1885, but it was several years later before the method was tested surgically, and it was then abandoned as unsafe and uncertain not only as to the immediate but also to the later effects. Since then, especially with the advent of some widely heralded new local anesthetic, medullary narcosis for a time again becomes prominent; but, despite the advocacy of many surgeons in many lands, the method has never gained a strong or lasting following. Jonnesco is the most recent sponsor for this more than twenty-year-old "discovery," declaring that the addition of strychnin to stovain, novocain, the various eucains, alypin, tropococain, etc., robs these local anesthetics of their dangers and makes high or low invasion of the cord safe and reliable.

I witnessed the operations performed at the Post-Graduate Hospital of this city under spinal analgesia induced by Jonnesco, and also visited Chicago and Rochester, Minn., soon after the demonstrations were given in those cities. From personal observation and from conversations with surgeons of my own and the above-mentioned places a consensus of opinion was obtained that seems unanimous both as to the method and the means of inducing this form of anesthesia.

THE DANGERS OF HIGH ANALGESIA

Observers of Jonnesco's method condemn high spinal analgesia without exception, because of the known dangers of invasion of that section of the cord, even though a small needle and 1 c.c. of sterile solution are the only foreign bodies introduced. That this opinion is well founded seems proved by recalling that of the seven cases of high spinal analgesia demonstrated during Jonnesco's visit, four resulted unfavorably. One of these was the Post-Graduate case above mentioned; another at New York (superficial chest operation) caused so much pain that the patient asked for chloroform; in a third case Jonnesco was unable to obtain cerebrospinal fluid after repeated trials, but did succeed in withdrawing blood; ether was finally given. In a fourth case reported by Dr. Edward Martin of Philadelphia (amputation of breast) it appears that the patient ". . . . narrowly escaped death. . . . Later ether had to be given to control the pain. . . ." Incidentally, Dr. Martin states that there has been one death and one case of partial paralysis in his city following spinal analgesia by imitators of Jonnesco.

THE DANGERS OF LOW ANALGESIA

Respecting low spinal puncture there appears to be some division of opinion as between those who would not advocate it under any circumstances and those who might employ it in the event of some contraindication to inhalation or local anesthesia.

THE DANGERS IN GENERAL SUMMED UP

In general, the cogent factors warranting hostile criticism of the method are:

1. Danger of interference with a highly organized section of the nervous system, considering the possibility of (a) puncture of blood vessels, leading to (b) spinal hemorrhage and areas of (c) spinal sclerosis or (d) syringomyelia later.
2. Uncertainty of reaching the arachnoid space and hence failure of analgesia.
3. Psychic shock incident to operations where patients are conscious and appreciative of the sights and sounds occasioned by the occurrence.
4. The advantages do not outweigh the dangers, known and unknown, in a yet insufficiently tried radical departure from older methods.

SPINAL ANALGESIA HAS A LIMITED FIELD

It is apparently the general opinion that spinal analgesia will always have a limited application that is best represented by emergency or battlefield operations; and that it will not be employed except for marked contraindications to either inhalation or local anesthesia.

We have had the opportunity of witnessing the demonstrations of an expert, but we were unconvinced that even with his considerable experience and enthusiastic advocacy we are warranted in recommending this method, even though so attractively and widely again offered to a willing but skeptical profession.

101 Manhattan Avenue.

BISMUTH SUBNITRATE GAUZE FOR USE IN THE NOSE

HAROLD HAYS, A.M., M.D.
NEW YORK

After submucous resection of the nasal septum, after inferior turbinectomies, etc., I have been using small strips of bismuth subnitrate gauze, prepared at the time of using by rubbing powdered bismuth subnitrate on gauze bandages, two inches wide and cut to the proper length. These strips were folded to a width of about one-half inch and the packing accomplished by placing one strip of gauze on the other.

Since Dr. Wiener's paper appeared[1] I have been using the bismuth gauze prepared according to his formula. The only objection I have found to Dr. Wiener's gauze is that, being packed in a crumpled condition in a glass tube, it cannot be laid out smoothly for use in the nose, when cut in small pieces.

In order to overcome this difficulty, I have had the gauze put up in a package of a different style, which is far more convenient for my use. The gauze is cut into small pieces, two and one-half inches square, after being immersed in the bismuth emulsion and dried. About fifty of these squares are packed in onion-skin paper, the ends of the paper being so folded that they can be easily lifted up without too much handling. This package is put into a small square pasteboard box. The original paper package is sterilized by heat and then the final package is sterilized in formalin in the same manner as all packages of the kind are sterilized.

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[1] Wiener, Solomon: The Use of Bismuth Gauze in Gynecologic Work, The Journal A. M. A., Oct. 23, 1909, liii, 1397.

When one wishes to use the gauze, the onion-skin paper can be lifted off from it and one or a number of pieces can be taken out with a sterile forceps. The pieces underneath are not touched and therefore can be left for later use. I am now having packages made containing twenty, fifty, and one hundred pieces.

11 West Ninety-first Street.

A CASE OF TRAUMATIC FRONTAL SINUSITIS

OPERATION; A CURE DUE IN PART TO THE INJECTION OF BISMUTH PASTE; PRACTICALLY NO DEFORMITY

F. PHINIZY CALHOUN, AB., M.D.
ATLANTA, GA.

There are always two important facts to be considered in any radical operation on the frontal sinus: first, deformity frequently follows the operation; and, second, the operation does not always effect a cure.

The case I report is one in which both of the bad results just mentioned have been avoided, and I attribute the cure to two injections of bismuth paste into the cavity.

History.—The patient, a healthy, robust-looking man, aged 41, consulted me May 23, 1908, on account of a continuous headache. He had consulted several oculists in neighboring cities for the same trouble, and glasses had been prescribed in each case. His headaches, restlessness at night and loss of appetite increased to such an extent during the few weeks prior to his visit to Atlanta that he had been referred by one doctor to another, with the hope of finding relief, and the patient stated that his trouble had been frequently diagnosed as incipient insanity and brain abscess. The patient attributed his present trouble to a blow which he received on March 27, 1907, while walking through the railroad yard of a neighboring city on a tour of inspection, when a heavy door of a refrigerator car suddenly swung open and the edge struck him on his right temple. He was knocked unconscious for a few hours and was confined to his bed for several weeks. After that time the headache increased in severity. March 19, 1908, two months before consulting me, a supposed polypus was removed from his right nose. There had never been a discharge from his nose.

Examination.—This showed a decided roughening of the right frontal eminence, over which there was a small scar in the skin, evidently from an old lacerated wound. On palpation there was tenderness, especially when pressing upward beneath the supraorbital ridge. There was a marked deviation of the nasal septum, high up, pressing against the middle turbinal body, the anterior end of which had been removed. This operation undoubtedly is what the patient thought to be the removal of a polypus. It was impossible to probe the nasofrontal duct. On transillumination there was a distinct shadow over the right side which might have been due to this bony thickening. An anterior skiagraph revealed a distinct difference in the two sides. This difference also might have been due to this bony thickening. A lateral view showed a very large sinus, and compared to a picture of the left side, the difference was marked. The patient's temperature, taken twice, morning and afternoon of the first day's examination, was a degree above normal.

Operation.—I was not sure, from my examination, that the patient had a purulent sinusitis, although I was so convinced that there was something wrong that I advised an operation, exploratory, if necessary, and the patient readily consented. He was placed in the Wesley Memorial Hospital, May 26, 1908, and operated on the same day. My incision was along the upper margin of the right brow, extending down into the lateral side of the nose. The skin and periosteum were retracted and a small groove was made above the supraorbital ridge, when there flowed out a quantity of thick, yellow odorless pus, apparently under pressure. Most of the entire external wall of the frontal sinus was removed and the cavity was thoroughly curetted. The ethmoid cells were explored and found healthy. The nasofrontal duct was enlarged and gauze passed through it into the nose. The wound was packed lightly with iodoform gauze, and except for a slight drain at the inner angle of the skin wound, it was closed entirely.

Postoperative History.—On the fourth day the gauze in the cavity was removed through the nose, under gas anesthesia, and I considered it best and safest to pack the wound open through the brow incision. The wound was dressed daily for a while, then every other day until healing took place, nearly fourteen weeks after the operation. Two months later he returned with some puffiness over the scar, and with a probe a long sinus leading high up was discovered, out of which oozed a quantity of mucopurulent discharge. My colleague, Dr. C. R. Andrews, suggested the injection of bismuth paste into the cavity, as he had used it rather extensively in his orthopedic practice. It required but two injections, at intervals of four days, of the following formula to bring about a permanent cure:

Bismuth subnitrate	30 parts
Paraffin, melt at 120	10 parts
White wax	10 parts
Petrolatum	50 parts

More than a year has now elapsed with no evidence of a discharge, and the patient has been absolutely free from headache since the day following the operation. The cavity filled almost completely and the deformity is practically not noticeable. The cause of the infection was undoubtedly the compound fracture of the external wall of the right frontal sinus. An intracranial infection would have taken place eventually, as the external table was unusually thickened.

833 Candler Building.

APPLICATION OF A SPLINT FOR FRACTURED ULNA

PENN-GASKELL SKILLERN, Jr., M.D.
PHILADELPHIA

I recently encountered a case of fracture of the ulna in which a new application of an old method seemed indicated. The solution of continuity occurred in the lower third of the shaft of the left ulna. The deformity, caused as usual by direct violence, was that the inferior fragment was driven outward, thereby encroaching on the interosseous space. Reduction by manipulation was evidently to be maintained by overabduction of the hand. Just so is overadduction aimed at in Colles' fracture.

How could the hand be secured in this position? The simplest method seemed to be to apply a Bond splint in reverse. The patient was furnished with a right-handed splint and instructed to grasp the semicylindrical block with his hand. The shaft of the splint, being free, formed an acute angle with the radial border of the pronated forearm. The hand was secured to the block by adhesive strips applied so as to describe an ellipse between the posterior surface of the bases of the metacarpals and the under surface of the distal end of the splint. The next manipulation accomplished with surprising satisfaction the result desired. The acute angle between the shaft of the splint and the forearm was obliterated by pushing the splint toward the forearm until it paralleled the latter. This of necessity forced the hand, bound to the block, over toward the radial side, in overabduction. The result was that the lower fragment of the ulna was drawn away from the radius as far as the interosseous ligament would permit, and thus the perfect coaptation of the fragments was obtained.

A very pertinent reference to this fracture is the following:[1]

> Great care is necessary in the treatment of this fracture, lest the upper end of the lower fragment retains the vicious position into which it is forced at the time of the accident, and so is ultimately soldered to the inner margin of the radius. To prevent this occurrence the hand should be permanently inclined toward the thumb by two splints, the extremities of which are rendered somewhat sloping from behind forward, in a direction opposite to that of the splints sometimes employed in the management of fracture of the corresponding end of the radius.

The principle, therefore, is an old one, but I think that it merits reconsideration, and that the single splint applied as described exactly meets the indications. It should be added that the leather side-pieces with which these splints are usually equipped were absent, since I was not convinced that they serve any practical purpose. Anyone may satisfy himself of the efficiency of this method by manipulating a splint in the manner indicated.

241 South Thirteenth Street.

ARTIFICIAL INCREASE OF EOSINOPHILE CELLS IN DEMENTIA PRÆCOX

R. E. WELLS, M.D.
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TRAVERSE CITY, MICH.

Several months ago in an article[2] by Dr. H. D. Purdum and myself, we mentioned the increase in eosinophile cells in the blood, which is often seen in dementia præcox, and also mentioned two cases in which we succeeded in raising the percentage of eosinophiles by administration of thyreoidectin.

Since that time I have been testing the effect of thyreoidectin on the blood of cases of dementia præcox. The original idea for administering the drug was based on the theory that the disease was possibly caused by perverted secretion of the thyroid gland. Recently several cases of catatonia have been reported as having been cured or improved by partial extirpation of the thyroid gland. *It was for this reason that it was thought that* thyreoidectin might exercise the same influence on dementia præcox. No improvement in any of the cases was noted, but it was observed that certain changes in the blood took place in most of the cases, which were characteristic.

The blood of ten cases of dementia præcox was examined at intervals of a few days during the administration of the drug. *Five cases of catatonia and five cases of* hebephrenia were taken at random. One case of epileptic insanity, one case of manic depressive insanity, one case of general paresis and a normal individual were also tested.

The following tables show the blood changes in the cases of dementia præcox:

CASE 1

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	10,660	15.4	61.7
May 5, after 40 grs. thyreoidectin	13,706	20.0	57.6
May 7, 5 grs. t.i.d	14,594	18.5	53.9
May 12, 5 grs. t.i.d	14,340	25.1	45.6
May 15, 10 grs. t.i.d	14,088	28.1	40.0
May 17, 10 grs. t.i.d	not obtainable	27.8	49.6
May 20, 10 grs. t.i.d	not obtainable	32.3	40.3
May 23, drug discontinued	8,376	22.0	45.9
June 4, drug discontinued	not obtainable	13.4	53.5
June 15, drug discontinued	not obtainable	7.8	51.9

CASE 2

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	6,592	6.0	61.4
May 7, after 35 grs. thyreoidectin	13,452	10.8	53.1
May 9, 15 grs. t.i.d	11,042	6.3	50.8
May 13, 15 grs. t.i.d	8,884	14.2	49.6
May 26, drug discontinued	5,692	15.4	40.3
May 30, drug discontinued	8,756	9.6	62.5
June 1, drug discontinued	7,482	8.3	37.4
June 5, drug discontinued	6,996	12.4	48.2
June 15, drug discontinued	8,122	6.1	47.0
June 22, drug discontinued	9.010	5.7	53.4

CASE 3

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	13,326	5.8	61.3
May 25, after 35 grs. thyreoidectin	14,594	10.4	51.9
May 28, 5 grs. t.i.d	13,580	11.1	48.9
May 30, 5 grs. t.i.d	14.340	12.3	45.3
June 1, 5 grs. t.i.d	13,706	11.2	51.4
June 4, 10 grs. t.i.d	12,944	9.0	50.3
June 6, 10 grs. t.i.d	not obtainable	9.2	47.0

CASE 4

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,548	3.4	71.7
June 2, after 30 grs. thyreoidectin	8,248	5.1	56.0
June 4, 10 grs. t.i.d	9,264	5.1	56.1
June 6, 10 grs. t.i.d	8,248	3.4	62.7

CASE 5

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,042	0.7	78.4
June 1, after 30 grs. thyreoidectin	9.518	4.6	62.2
June 4, 5 grs. t.i.d	10,914	7.6	60.0
June 8, 5 grs. t.i.d	11,802	5.0	67.8

CASE 6

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	13,072	3.5	70.5
June 10, after 20 grs. thyreoidectin	8,122	1.2	73.0
June 12, 5 grs. t.i.d	10,534	1.1	70.0
June 14, 5 grs. t.i.d	8,884	3.0	72.1

CASE 7

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	11,422	6.0	45.8
June 17, after 25 grs. thyreoidectin	8,755	7.1	45.5
June 19, 5 grs. t.i.d	8,884	10.5	43.4
June 21, 5 grs. t.i.d	9,392	8.4	48.0

CASE 8

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	18,404	1.3	57.1
June 18, after 30 grs. thyreoidectin	13,960	2.6	56.1
June 20, 10 grs. t.i.d	13,580	3.1	55.1
June 22, 10 grs. t.i.d	14,722	3.2	55.0

CASE 9

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	9,392	1.2	67.8
Oct. 12, after 15 grs. thyreoidectin	10,660	1.7	70.2
Oct. 13, 15 grs. ti.d	9,898	1.4	76.0
Oct. 14, 15 grs. t.i d	10,888	2.4	63.6

CASE 10

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	8,168	2.0	64.8
Nov. 28, after 35 grs. thyreoidectin	5,552	4.2	59.6
Dec. 1, 15 grs. t.i.d	6,340	3.0	61.2
Dec. 3, 15 grs. t.i.d	6,214	5.4	49.0

In making the differential counts in these cases, at least 500 white blood cells were counted and often a thousand. They were all counted by one person. Wright's blood stain was used.

The most notable variations in the blood are the increase in the eosinophile cells in 90 per cent. of the cases and the decrease in the neutrophiles, the latter, as a rule, showing a greater decrease in proportion than the rise in eosinophiles. Case 6 is the only one in the series in which there was no rise in the eosinophiles. It is also noticeable that there was very little variation in the neutrophiles in this case. This patient is one who has suffered from hebephrenia for many years, but who does not show many active symptoms and lived outside of the institution for several years before admission. The rise in eosinophiles is apparently greater in those having originally a high eosinophile percentage, but most of those having a lower percentage originally show practically a doubling of the eosinophiles. The total number of leucocytes showed no constant variation, being increased in some cases and diminished in others.

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[1] Gross: System of Surgery, Edition 6, i, 965.

[2] The Journal A. M. A., July 4, 1908.

It is noteworthy that the blood findings in the normal individual remained fairly constant:

	Leucocytes.	Eosin. Per cent.	Neut. Per cent.
Average count	6,720	4.7	60.3
May 17, after 30 grs. thyreoidectin	6,664	4.4	62.2
May 19, 5 grs. t.i.d............	5,692	5.6	60.0
May 22, 5 grs. t.i.d.............	6,848	4.0	60.0

The other cases of insanity tested showed no rise in the eosinophiles and no notable changes in the neutrophile count nor in the total leucocyte count. From the small number of cases examined, it cannot be claimed that these changes in the blood are specific for dementia præcox, but from the experiments with other forms of alienation and with a normal individual it would seem that there must be some degree of specificity or an unstable condition of the blood in dementia præcox which produces these results. If this test proves to be specific, it could be used as a diagnostic procedure in cases which are not clear.

The etiology of dementia præcox is still obscure. Possibly many factors contribute to its causation. From the experiments with thyreoidectin it might be theorized that the disease is due to perverted function of the thyroid gland, for we know that at certain periods in the course of hebephrenia and catatonia the eosinophile cells are normally increased. If, therefore, thyreoidectin produces the same effects on the blood that is observed normally in many cases of hebephrenia and catatonia, it would seem rational to suppose that perverted thyroid secretion is one factor in the etiology of dementia præcox.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1909," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(Continued from page 132)

SERUMS AND VIRUSES*

SERUM ANTIDIPHTHERICUM AND ANTIDIPHTHERIC GLOBULINS.—Antidiphtheric Serum or Diphtheria Antitoxin is an official preparation; for description see the *U. S. Pharmacopeia*, 8th decennial revision. The diphtheria antitoxin sold in interstate commerce in the United States and in the District of Columbia is required to conform to the standard established by the United States Public Health and Marine-Hospital Service. Some manufacturers mix serums of different strengths so as to secure a preparation containing approximately a definite number of units per c.c. Most of the firms also market a concentrated diphtheria antitoxin or antidiphtheric globulins prepared by the removal, by precipitation with neutral salts, of most of the constituents of the serum except that fraction of the globulins bearing antitoxic potency.

Inasmuch as the ordinary (not concentrated) serum antidiphthericum is contained in the U. S. P., it is desirable that the term "U. S. P." be used in connection with this product (and only with this one) in order to avoid confusion with the globulin preparations.

The French, German and Spanish Pharmacopeias recognize both liquid and desiccated preparations.

H. M. Alexander & Co., Marietta, Pa.

Diphtheria Antitoxin. Only the antidiphtheric globulin is marketed; the antidiphtheric serum is concentrated and refined in accordance with recent improvements of the Gibson method. Marketed in syringes containing from 500 to 5,000 units.

Burroughs, Wellcome & Co., London, England, and New York City.

Diphtheria Antitoxin Serum. Serums of different values from a number of horses are mixed to yield a definite value (from 450 to 500 units per Cc.), also a high potency serum, 1 Cc. of which contains 1,000 units. Trikresol (0.3 per cent.) is added as a preservative. Marketed in hermetically-sealed vials containing 1,000 to 4,000 (Ehrlich-Behring) units; also a high potency serum containing from 1,000 to 10,000 units.

Cutter Laboratory, Berkeley, Cal.

Diphtheria Antitoxin. Marketed in syringes containing 4,000 units; also in bulbs. Diphtheria antitoxin globulin marketed in syringes containing 1,000 units.

Farbwerke, vorm. Meister, Lucius and Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York.)

Diphtheria Antitoxin "Behring;" imported into the United States only upon special order.

Department of Health, City of New York.

Refined and Concentrated Diphtheria Antitoxin (Globulin). The preparation is a solution of the globulins of the blood which are soluble in a saturated sodium chloride solution; this contains most of the antitoxin. Preserved with chloroform. Marketed in syringes containing from 2,000 to 5,000 units, each Cc. containing 800 to 1,500 units. Also in vials.

Wm. R. Hubbert, Detroit, Mich.

Diphtheric Antitoxin. Marketed only in bulk (usually from 1 to 10 liters).

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Diphtheria Antitoxin. Only antidiphtheric globulin is sold; this is marketed in syringes containing from 500 to 10,000 units each; also in vials containing from 1,000 to 5,000 units each. The latter are prepared more particularly for the use of Boards of Health.

Memorial Institute for Infectious Diseases, Chicago.

Antidiphtheritic Serum. Most of the antitoxin prepared is concentrated. Marketed in packages of from 1,000 to 5,000 units each, both in syringes ready for use and in bottles.

H. K. Mulford Co., Philadelphia.

Diphtheria Antitoxin, Concentrated (globulin). Prepared from [illegible] by the removal, by precipitation at 33⅓ [illegible] ammonium sulphate, of the serum albumins [illegible] luct consists essentially of a soluble serum [illegible] dialysis and redissolved in physiological salt [illegible] with not more than ¼ per cent. trikresol or [illegible] to 1 per cent. chloroform. Marketed in syringes containing from 1,000 to 5,000 units.

National Vaccine and Antitoxin Institute, Washington, D. C.

Diphtheria Antitoxin, Concentrated; prepared according to Gibson's method. Preserved with chloroform. Marketed in syringes containing from 500 to 6,000 units.

Parke, Davis & Co., Detroit, Mich.

Antidiphtheric Serum, U. S. P.; preserved with 0.4 per cent. trikresol; marketed in piston syringe containers of from 500 to 5,000 units each.

Antidiphtheric Globulins. Marketed as above.

Antidiphtheric Globulins (dry). Marketed in packages of 3,000 units each. The dry powder is readily soluble in water and will keep indefinitely.

Frederick Stearns & Co., Detroit, Mich.

Diphtheric Antitoxin, U. S. P. Preserved with 0.4 per cent. trikresol. Marketed in syringe containers holding from 1,000 to 4,000 units.

Concentrated Diphtheric Antitoxin. Prepared by the Gibson process; preserved with chloroform (2.4 minims per fluid ounce). Marketed as above; also in syringes containing 5,000 units.

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* Editor's Note: In this issue appears a *symposium* on serums, *vaccines*, tuberculins, etc., which was presented in the Section on Pharmacology and Therapeutics at Atlantic City, 1909.

ANTIDYSENTERIC SERUM.—

H. K. Mulford Co., Philadelphia, Pa.

Antidysenteric Serum. The blood serum of horses immunized against the Shiga bacillus. Recommended in dysentery and summer diarrheas where the bacillus of Shiga is an etiologic factor. Marketed in syringes containing 10 Cc. Dose 10 to 40 Cc. every four to eight hours; to be injected hypodermically.

ANTIGONOCOCCIC SERUM.—Favorable results have been reported from the use of antigonococcic serum in the treatment of chronic complications of gonorrhea involving serous cavities, especially the joints. The results in the case of the chronic stages and sequels of gonorrhea involving the genito-urinary tract seem to be less favorable while it seems to have still less value in acute gonorrheal affections.

Parke, Davis & Co., Detroit, Mich.

Antigonococcic Serum, prepared from the blood of rams immunized against both dead and living cultures of virulent gonococci according to the method of Rogers and Torrey[1]. *Marketed in bulbs* containing 2 Cc. each.

Dosage. Two Cc. subcutaneously, to be repeated in 1 to 4 days.

ANTIMENINGOCOCCUS SERUM.—

Farbwerke, vorm. Meister, Lucius und Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York..

Meningococcus Serum "Hoechst." A serum prepared by the immunization of horses with virulent cultures of diplococcus intracellularis or its products according to Ruppel's method. Recommended as a diagnostic agent for distinguishing (by the agglutination test) the meningococcus from other diplococci and as a prophylactic and curative agent. It is injected subcutaneously or intralumbarly or in the dry form may be used as a dusting powder applied to the nasopharyngeal space or tonsils. *Marketed* in powder form mixed with 49.5 per cent. milk sugar and 0.5 per cent. alumnol, for use as a dusting powder; also in the dried form to be dissolved in 10 parts of water and injected subcutaneously or intralumbarly; also in the liquid form, preserved with 0.5 per cent. phenol (for agglutination tests).

Dose. 2.5 Gm. of the dried serum, dissolved in 25 Cc. water, subcutaneously to be followed, after lumbar puncture, by 10 to 15 Cc. or more, intralumbarly. In severe cases much larger amounts are recommended. 1 Gm. as a protective dose.

ANTIPNEUMOCOCCUS SERUM.—Antipneumococcus serum is the blood serum of horses immunized against pneumococci. Frequently both dead and living pneumococci are used.

Use.—It has been said to be useful in the treatment of pneumonia when injected subcutaneously. Hektoen, Weaver and Tunnicliff have recently examined the serums of this class found on the American market. They summarize their views as follows: "In the antipneumococcus serums it was impossible to demonstrate antibodies for pneumococci by any method employed."

"It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests."

H. K. Mulford Co., Philadelphia.

Antipneumococcic Serum, stated to be prepared by immunizing horses with both dead and living pneumococci. Marketed in syringes containing 20 Cc. Dose: 20 to 100 Cc.

Frederick Stearns & Co., Detroit, Mich.

Pneumolytic Serum, stated to be a composite polyvalent serum prepared by injecting horses with virulent pneumococci from various sources. The horses are first immunized with diphtheria toxin. Marketed in syringes containing 20 Cc. Dose: 10 to 20 Cc., to be repeated in 12 to 24 hours.

ANTISTAPHYLOCOCCUS SERUM.—

Burroughs, Wellcome & Co., New York.

[illegible] *Serum* is stated to be obtained from horses [illegible] cultures of staphylococcus pyogenes aureus, albus and citreus. Preserved with trikresol. Marketed in vials containing 25 to 50 Cc. Recommended in the treatment of various staphylococcus infections.

ANTISTREPTOCOCCUS SERUM.—Antistreptococcus serums are prepared by immunizing horses with virulent cultures of *streptococci.* Most manufacturers employ several strains of streptococci, thus obtaining polyvalent serums. In some cases humanized strains of streptococci are used; in others, cultures, the virulence of which has been much increased by passage through animals. In a few cases both human and animal strains are employed. Some manufacturers employ horses immunized against diphtheria, making the doubtful claim that such serum is especially active in stimulating leucocytosis and phagocytosis.

Actions and Uses.—Antistreptococcus serum has been claimed to be useful in the treatment of streptococcus infections such as erysipelas, scarlet fever, puerperal septicemia, tuberculosis (mixed infection), etc. It has also been used as a prophylactic prior to surgical operations, after labor, in scarlet fever epidemics, etc. Its value is doubtful.

Hektoen, Weaver and Tunnicliff recently examined the preparations found on the American market; in a preliminary report (1) they state: "Streptococcus opsonins could not be demonstrated in any of the serums tested, and activation by fresh serums was not accomplished to any significant degree. When they were injected into rabbits, increase in streptococcus opsonins could not be demonstrated in the animals' serums in any notable degree, except in some instances. Attempts to obtain protective and curative effects from the injection of antistreptococcus serums in rabbits, guinea pigs, and in a more limited scale in mice, met failure. The serums often seemed to reduce the natural resistance and to hasten death."

"It is our belief that the claims for the usefulness of antistreptococcus and antipneumococcus serums rest on impressions from results in clinical cases in man, and have in most cases no foundation whatsoever in experimental tests."

Antistreptococcus serum (liquid and desiccated) is recognized by the French pharmacopeia.

Burroughs, Wellcome & Co., London and New York.

Polyvalent Antistreptococcus Serum is stated to be obtained from horses i[illegible]ltures of a number of strains of cases of er[illegible] puerperal fever, rheumatism, septicemia, angina, [illegible]ative endocarditis.

Antistreptococcus [illegible] is stated to be obtained from horses injecte[illegible]es of a number of strains of streptococci obtained from cases of erysipelas.

Antistreptococcus Serum (Rheumatism) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of rheumatism.

Antistreptococcus Serum (Scarlatina) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of scarlet fever.

Antistreptococcus Serum (Puerperal Fever) obtained from horses injected with killed cultures of a number of strains of streptococci obtained from cases of puerperal fever.

All of the above are prepared with trikresol and are marketed in hermetically-sealed vials containing in most cases 25 to 50 Cc.

Cutter Laboratory, Berkeley, Cal.

Polyvalent Streptococcic Serum, stated to be prepared by the injection of many strains of living humanized cultures of streptococci into horses immunized with diphtheria toxin. Marketed in piston syringe containers, each containing 10 Cc. of serum.

Chemische Fabrik auf Actien (vorm. E. Schering), Berlin, Germany. (Schering & Glatz, New York.)

Aronson's Antistreptococcus Serum, stated to be a polyvalent serum obtained by inoculating horses with streptococci the virulence of which has been highly exalted by animal passage and with various humanized strains of streptococci. Preserved with 0.4 per cent. trikresol. *Dose:* 20 to 100 Cc., according to the severity of the case and the age of the patient.

Farbwerke, vorm. Meister, Lucius und Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York..

Antistreptococcic Serum, Hoechst, stated to be a polyvalent serum, prepared by immunizing horses against streptococcus cultures of the most varied origin and with highly virulent passage cultures according to the method of Meyer and Ruppel. Contains no artificial preservatives. Dosage: 1 to 10 Cc. for immunization. 2 to 25 Cc. for single curative dose. 3 to 50 Cc. for double curative dose.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Antistreptococcic Serum Polyvalent; marketed in 10 Cc. syringes. Dose: as a prophylactic, 10 Cc. curative, 20 to 100 Cc.

H. K. Mulford Co., Philadelphia.

Antistreptococcic Serum, stated to be the serum of horses which have been treated with streptococci of various strains. *Marketed* in 10 Cc. syringes. *Dose: 20 to 80 Cc.*

Parke, Davis & Co., Detroit, Mich.

Antistreptococcic Serum, stated to be a polyvalent serum; prepared by [illegible] horses with killed cultures of streptococci; the latter a[illegible]ous human streptococcus infections and certain [illegible] common to animals. Preserved with trikresol. Marketed in 10 Cc. piston syringe containers, also in bulbs containing 10 Cc. each.

Frederick Stearns & Co., Detroit, Mich.

Streptolytic Serum, stated to be a composite and polyvalent serum; composite because it contains diphtheric antitoxin in addition to the streptococcus antibodies. Marketed in 10 Cc. syringes some of which have attachments for subcutaneous injection, others for rectal injection.

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[1] THE JOURNAL A. M. A., Sept. 14, 1907, xlix, 918.

ANTITUBERCLE SERUM.—

Parke, Davis & Co., Detroit, Mich.

Antitubercle Serum. A serum prepared by treating horses for several months with the toxic products of the tubercle germs. Stated to be an experimental remedy claimed by some to give favorable results in tuberculosis. Marketed in 1, 2 and 4 Cc. bulbs and in 1 ounce bottles. Dose: 1 to 4 Cc. daily hypodermically.

ANTITYPHOID SERUM.—Antityphoid serum is a serum obtained from horses which have been injected with killed cultures of bacillus typhosus.

Actions and Uses.—Antityphoid serum has been employed in the treatment of typhoid fever, but the evidence as to its value is conflicting.

Burroughs, Wellcome & Co., London and New York.

Anti-typhoid Serum is stated to be obtained from horses injected with killed cultures of Bacillus typhosus. Marketed in hermetically-sealed vials containing 25 to 50 Cc.

TETANUS ANTITOXIN.—(Antitetanic Serum and Antitetanic Globulin).—Antitetanic Serum is the blood serum of horses immunized to the toxin of the tetanus bacillus. It is marketed in both liquid and dry forms. Some manufacturers prepare an Antitetanic Globulin; this contains a solution of the globulins of the blood, which are soluble in a saturated sodium chloride solution, together with the antitoxin, and contains the latter in concentrated form.

The antitetanic serum sold in interstate commerce in the United States should conform to the standard established by the United States Public Health and Marine-Hospital Service. This standard is defined as follows (Treasury Department Circular No. 61, Oct. 25, 1907; Bulletin 43, Hygienic Laboratory): "The immunity unit for measuring the strength of tetanus antitoxin shall be ten times the least quantity of antitetanic serum necessary to save the life of a 350-gram guinea pig for ninety-six hours against the official test dose of a standard toxin furnished by the Hygienic Laboratory of the Public Health and Marine-Hospital Service."

Uses.—Antitetanic serum is used both as a prophylactic and a curative agent in tetanus. The dried product may be used as a dusting powder.

Dose.—Immunizing, 1,500 units; in tetanus, 3,000 to 20,000 units every four to eight hours.

Serum Antitetanicum is official in the Belgian, French and Swiss Pharmacopeias. Both liquid and desiccated preparations are recognized by the French Pharmacopeia.

Department of Health, City of New York.

Antitetanic Globulin. Preserved with chloroform. Marketed in vials containing 1,500 units.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Only the concentrated antitoxin (globulin) is marketed; this is offered in syringes containing from 1,500 to 5,000 units each.

H. K. Mulford Co., Philadelphia, Pa.

Tetanus Antitoxin, marketed in syringes containing 1,500 units.

Parke, Davis & Co., Detroit, Mich.

Antitetanic Serum, marketed as follows:
1. In piston containers, 1,500 units.
2. In bulbs containing 1,500 units.
3. Dry.
4. Antitetanic Dusting Powder; the dried serum mixed with a small quantity of chloretone (chlorbutanol).

VACCINE VIRUS.—Vaccine virus is the material obtained from the skin eruptions of calves having vaccinia. The "pulp" is ground and mixed with varying percentages of glycerin. The latter has a certain degree of antiseptic action. It is usually marketed in capillary tubes or as glycerinated points. The serums which exude after the removal of the crusts have been used by some manufacturers for the preparation of "dry lymph points." These are generally regarded as unsatisfactory and the new federal regulations forbid interstate traffic in them after Jan. 1, 1910.

Some firms test the activity of their products on the cornea of rabbits and on calves.

Vaccine virus is official in the Belgian Pharmacopeia under the name "Vaccinum"; in the Swiss as "Virus Vaccinum."

H. M. Alexander & Co., Marietta, Pa.

Marketed as "glycerinated lymph" in capillary tubes; also as "glycerinated vaccine points" and as "dry points."

Cutter Laboratory, Berkeley, Cal.

Marketed in two forms; ivory points (dry) and in capillary tubes.

Lederle Antitoxin Laboratories, New York City. (Schieffelin & Co., New York.)

Glycerinated Vaccine Virus: (a) in glass capillary tubes and in bulk (for 10, 20 or 50 vaccinations); (b) upon Lederle's Protected Ivory Points; the latter are contained in capsule-like glass tubes which do not require breaking.

H. K. Mulford Co., Philadelphia.

Glycerinated Vaccine Lymph, in sealed capillary tubes. Glycerinated Glass Vaccine Points; glycerinated lymph on sterile glass points.

National Vaccine and Antitoxin Institute, Washington, D. C.

Glycerinated Vaccine Virus marketed in capillary tubes; Glycerinated Vaccine Virus on Ivory Points; special capsule.

Parke, Davis & Co., Detroit, Mich.

Glycerinated Vaccine: (a) in capillary tubes, (b) on ivory points. The points are contained in sealed glass tubes provided with Lee's breakable ring so that they may be opened without difficulty.

BACTERIAL VACCINES

Bacterial vaccines (cf. also tuberculin) are suspensions of the killed bacteria in physiologic salt solution; phenol (0.5 per cent.) is usually added as a preservative. Being suspensions, there is a tendency for the bacteria to settle on standing; hence the vial should be shaken before the syringe is filled and the latter should be shaken before injecting.

Pharmacopeial Preparation.—The French Pharmacopeia contains a "*Vaccin antipesteux,*" consisting of a suspension of killed plague bacilli and a "*Vaccin antipesteux sensibilisé,*" prepared by treating killed plague bacilli with antiplague serum. (Antiplague Serum is also official in the French Pharmacopeia.)

Actions and Uses.—The use of many of these vaccines is in the experimental stage. Bacterial vaccines are often prepared from cultures obtained from the individual to be treated (autogenous vaccines); these usually give the best results. In fact some authors maintain that "stock" vaccines should be used only when it is impracticable to secure the autogenous agent.

Bacterial vaccines are used to aid the production of an active immunity. Great care and skill are necessary for their proper use and no definite statements as to dosage, etc., can be given; the physician must be guided by the condition of the patient and the manner in which the latter reacts to the treatment.

The following were licensed to manufacture and sell in interstate commerce products of this character prior to July 15, 1909. (Cf. also Tuberculin).

Burroughs Wellcome & Co., London, England and New York City.
Lederle Antitoxin Laboratories, New York City.
H. K. Mulford Co., Philadelphia, Pa.
National Vaccine and Antitoxin Institute, Washington, D. C.
Parke, Davis & Co., Detroit, Mich.
Swiss Serum and Vaccine Institute, Berne, Switzerland.

The following products have been submitted to the Council:

Some of the licensed firms do not market stock vaccines, but prepare them only from cultures from patients.

BACILLUS COLI VACCINE.—Bacillus Coli Vaccine seems to cause distinct improvement in certain infections of the urinary tract, due to the colon bacillus. Pain and frequency of micturition are said to be quickly relieved, but complete elimination of the bacteria is stated to be rare. It has also been used in subacute and chronic appendicitis and in gall bladder fistulas where there was an infection with the colon bacillus.

H. K. Mulford Co., Philadelphia.

Coli-Bacterin. Marketed in 1 Cc. vials; each Cc. is said to contain approximately 50,000,000 killed bacilli suspended in normal salt solution.

BACILLUS PYOCYANEUS VACCINE.—This is said to be useful in local infections in which this organism is present. A recent writer states that he has never experienced the slightest beneficial effect either from the autogenous or stock vaccines prepared from this organism, and considers its use illogical.

H. K. Mulford Co., Philadelphia.

Pyocyano-Bacterin. Each Cc. is said to contain about 30,000,000 killed bacilli.

GONOCOCCUS VACCINE.—Gonococcus vaccine has been used with much success in subacute and chronic gonococcus infections involving the prostate, joints, eyes, etc. It has been stated that the strains of the gonococcus are not so diversified as are those of many other organisms and that therefore better results may be expected from stock vaccines of this organism than in many other cases.

Cutter Laboratory, Berkeley, Cal.

Gonococcic Vaccine. Marketed in 1 Cc. vials; each Cc. containing about 50,000,000 cocci suspended in physiological salt solution with 0.4 per cent. trikresol.

H. K. Mulford Co., Philadelphia.

Neisser Bacterin. Each Cc. is said to contain approximately 50,000,000 killed gonococci; preserved by 0.5 per cent. phenol.

National Vaccine and Antitoxin Institute, Washington, D. C.

Gonococcic Vaccine. Marketed in syringes each said to contain 2,000,000 to 50,000,000 bacteria; sterilized by heat.

Parke, Davis & Co., Detroit, Mich.

Gonococcus Vaccine. P., D. & Co. Marketed in bulbs each said to contain 20,000,000 bacteria; sterilized by heat.

MICROCOCCUS NEOFORMANS VACCINE.—Micrococcus neoformans vaccine is claimed to be beneficial in ulcerated tumors in which this organism occurs as a secondary infection.

H. K. Mulford Co., Philadelphia.

Neoformans-Bacterin. Each Cc. is said to contain approximately 50,000,000 killed neoformans micrococci.

PNEUMOCOCCUS VACCINE.—Pneumococcus vaccine has been claimed to be useful in pneumococcic infections. In laboratory experiments it was found inert so far as indicated by any change in the opsonic index when injected into rabbits.

H. K. Mulford Co., Philadelphia.

Pneumo-Bacterin. Each Cc. is said to contain about 50,000,000 killed pneumococci.

STAPHYLOCOCCUS VACCINES.—These have been used with much success in localized surface infections such as acne, acute boils, carbuncles and septic wounds, in multiple subcutaneous abscesses, sinuses, chronic osteomyelitis, etc. The best results are obtained with autogenous vaccines. Labora-ry experiments have also shown that these vaccines possess stinct antigenic properties when tested by infections in rab-its with subsequent opsonin determinations.

Cutter Laboratory, Berkeley, Cal.

Staphylococcus Vaccine. Each Cc. contains about 500,000,000 cocci preserved with 0.4 per cent. *trikresol.*

H. K. Mulford Co., Philadelphia.

Staphylo-Bacterin. Each Cc. is said to contain about 300,000,000 killed staphylococci aurei.

Parke, Davis & Co., Detroit, Mich.

Four forms of vaccines are offered.
1. From staphylococcus pyogenes albus.
2. From staphylococcus pyogenes aureus.
3. From staphylococcus pyogenes citreus.
4. From the three preceding combined.

Each Cc. contains about 400,000,000 bacteria.

STREPTOCOCCUS VACCINE.—Recommended in various infections by streptococci (scarlet fever, puerperal septicemia, erysipelas, etc.).

H. K. Mulford Co., Philadelphia.

Strepto-bacterin. Each Cc. contains about 50,000,000 killed streptococci.

Parke, Davis & Co., Detroit, Mich.

Streptococcus Vaccine. Each Cc. contains about 40,000,000 streptococci pyogenes.

TYPHOID VACCINE.—Inoculations with typhoid vaccines have been practiced extensively in various armies; the results, both as regards the morbidity and the mortality from typhoid fever seem to have been distinctly favorable. Such inoculations have been recommended in institutions where many of the personnel are not infrequently exposed to typhoid infection and in communities threatened with or affected by typhoid epidemics. It has been suggested that typhoid vaccines may be of value in the treatment of typhoid carriers.

H. K. Mulford Co., Philadelphia.

Typho-bacterin. Each Cc. contains about 50,000,000 killed typhoid bacilli.

TUBERCULIN PREPARATIONS

Tuberculins represent the toxins of the tubercle bacillus. They may be in the form of a filtered extract *of the bacilli* or may be composed of the pulverized insoluble substance of the bacilli themselves. In the latter, or emulsified form, tuberculin is known as tubercle vaccine, and might be classed with the "Bacterial Vaccines" (which see). Tuberculins are *therefore of two general classes:*

1. Those prepared from the germ-free culture media, and *containing for the most part only soluble products of the* bacillus. This class includes Tuberculin "old" (or Tuberculin Koch) and Tuberculin Denys (Bouillon Filtré).

2. Those which contain the greater part of the germ body *itself; they include the new tuberculins* of Koch ("T. R." and the "New Tuberculin Koch [Bacillus emulsion]").

OLD TUBERCULIN, "O. T." (Tuberculin Originale, "T. O."; Tuberculin Koch).

Old Tuberculin is prepared by [illegible] 8 weeks' bouillon culture of tubercle bacilli [illegible] to 1/10 of its volume and filtration throug[illegible] A clear, syrupy, amber colored fluid; containing about 50 *per cent.* glycerin[1]. Frequently marketed in "serial dilutions" by which the doses may be gradually increased.

TUBERCULIN "DENYS" ("B. F."; Bouillon Filtrate; Bouillon Filtré, Denys).

This is the bouillon from cultures on which tubercle bacilli of the human type have grown to maturity (5 to 6 weeks) freed from germs by filtration through porcelain.

"NEW TUBERCULIN"—"T. R."—New Tuberculin represents *a portion* of the tubercle bacillus.

It is prepared as follows: A suspension of ground virulent tubercle bacilli is centrifugalized; the upper layer, consisting of extractives and fatty substances mixed with bacilli, is removed while other bacilli and fragments are thrown to the bottom. The sediment is again ground and centrifugalized; the process is repeated until almost no sediment remains. The second and supernatant liquids are united and to them glycerin, 20 per cent., and a little formaldehyde in solution are added; this emulsion is the "T. R." Each Cc. represents the residue from approximately 10 mg. dry originally virulent tubercle bacilli (human).

NEW TUBERCULIN, KOCH, BACILLI EMULSION ("B. E."). This represents the *entire* bacilli whether soluble or *insoluble.*

The germs are simply crushed and pulverized and mixed with equal parts of water and glycerin. The suspension contains 5 mg. dry, originally virulent, tubercle bacilli (human).

Action and Uses.—The different modifications and preparations of tuberculin are practically identical in their physiologic effects. They vary chiefly in a quantitative way and in absorbability. They are used both for diagnostic and therapeutic purposes:

Diagnostic Use.—"Tuberculin depends for its diagnostic value on a special sensitiveness acquired by the tissues after a tuberculous infection. This sensitiveness is manifested by an inflammatory response when tuberculin is brought in contact with the skin or mucous membrane."[2] The original tuberculin of Koch is considered the most satisfactory preparation for diagnosis but other filtered extracts are suitable. There are four principal methods of applying the test: 1. The Cutaneous Test (von Pirquet); 2. The Inunction Test (Moro); 3. The Conjunctival Test (Wolff-Eisner, *Calmette*); 4. The Subcutaneous Test. The proper performance *and correct* interpretation of these tests require *much* knowledge and experience. Some of them, notably the conjunctival and subcutaneous tests, may under certain circumstances and in the hands *of inexperienced or careless persons,* do much harm.

Use in Therapeutics.—The successful employment of tuberculin in therapeutics depends upon a thorough knowledge of the disease and the individual patient; in many cases its use may do much harm. Baldwin[2] states the general principle involved as follows:

"The therapeutic use of tuberculin may have *two fairly* definite objects in view: One is to diminish the sensitiveness to the toxin—i. e., to itself—the other is to create intermittent local reactions and thus to stimulate the disease focus *to heal* or become absorbed. The possibility of the production of a recognizable immunity to the disease thus far by any form of tuberculin treatment is open to question. A certain degree of resistance is indirectly accomplished when sensitiveness to tuberculin is decreased to a marked degree, accompanied by constitutional improvement. Such specific resistance as can be obtained by tuberculin is gradually lost after the treatment is discontinued, so that statements that patients can be made 'immune' are unjustified."

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[1] Some firms add trikresol to their preparations of this tuberculin; the necessity or advisability of this is considered questionable if the glycerin is of the proper strength. It is stated that trikresol will, in the course of time, weaken the tuberculin.

[2] Baldwin: The Journal A. M. A., 1910, liv, 260.

As regards the choice of tuberculin and the method of administration Baldwin says:

"For therapeutic use the choice chiefly lies between the solutions and emulsions or vaccines. Opinions are too variant to permit the formulation of rules. In general the dosage is more controllable with solutions, and reactions are less frequent from emulsions." "Owing to the uncertain absorption of emulsions, reactions may ensue unexpectedly if the dose is increased greatly. The solutions are therefore safer for tuberculin immunization until some accurate standards for determining the dosage shall be made. The dosage is at present empirical; each individual case must be an experiment, and the symptoms carefully observed before each dose. The subcutaneous injection is the only satisfactory method for the administration of tuberculin. Tuberculin pills or capsules for stomach ingestion and suppositories per rectum are too uncertain of absorption to warrant any recommendation. Innunctions of tuberculin have a possible field in treatment of skin tuberculosis; otherwise they are also impracticable."

Pharmacopeial Preparations.—Koch's "old tuberculin" is official in the German Pharmacopeia under the name "Tuberkulinum-Kochi, Tuberkulin"; in the Belgian under the name "Tuberculinum"; in the Swiss under the name "Tuberkulinum Concentratum"; and in the French under the name "Tuberculine Brute." The French and Swiss Pharmacopeias contain also diluted tuberculin ("Tuberkulinum Normale Dilutum" of the Swiss, "Tuberculine Diluée" of the French, Pharmacopeia), prepared by diluting 1 Cc. of the concentrated tuberculin with 10 Cc. of 0.5 per cent. phenol. The French Pharmacopeia contains also a "Tuberculine Solide Purifiée" prepared by precipitating the "Tuberculine Brute" with ten times its volume of 80 per cent. alcohol, washing the precipitate with ether and drying *in vacuo*. For use 0.01 Gm. of this is dissolved in 100 Gm. distilled water.

Preparations[4]:

H. M. Alexander & Co., Marietta, Pa.

Original Tuberculin "O. T." (Koch); marketed in 1 and 3 Cc. vials.

Tuberculin.—Bouillon Filtrate "B. F." (Human). 1 and 3 Cc. vials.

Tuberculin Residue. T. R. (Human) (Koch).

Bacillin Emulsion "B. E." (Human).

Dixon's Tubercle Bacilli Extract (See "Fluid of Dixon," Medical News, Jan. 17, 1891). An extract of tubercle bacilli dissolved in normal saline solution. Marketed in syringes containing the extract from 1 mg. bacilli. The standard therapeutic dose is a weekly injection of the contents of 1 syringe, to be reduced in amount and frequency if the patient shows signs of reaction.

Dixon's Suspension of Dead Tubercle Bacilli (See "Possibility of Establishing Tolerance for Tubercle Bacilli," Medical News, Oct. 19, 1889). A suspension of dead tubercle bacilli in physiologic salt solution which have been decreased by prolonged treatment with alcohol and ether. Marketed in syringes containing 0.001 mg. bacilli, which is the standard therapeutic dose (cf. preceding).

Tuberculin for the Cutaneous Test (von Pirquet). A solution of *tuberculin original* in capillary tubes. Solutions of two strengths, one for children and one for adults, are prepared.

Tuberculin for the Ophthalmic Test. Tuberculin Precipitatum. "T. P." Prepared by precipitation with 95 per cent. alcohol from Koch's Old Tuberculin. Marketed in tubes in solutions of two strengths (0.5 per cent. and 1 per cent.).

Tuberculins for the Detre Differential Diagnostic Test. Three capillary tubes: 1. Tuberculin Original, "T. O." 2. Bouillon Filtrate, "B. F." (Human). 3. Bouillon Filtrate, "B. F." (Bovine).

Cutter Laboratory, Berkeley, Cal.

Tuberculin "Old," Koch; Concentrated; in 1 Cc. vials and preserved with trikresol; for use in solutions only. Also in serial dilutions; the latter in packages containing 5 bottles each holding about 8 Cc., ranging from 0.01 to 100 mg. per Cc.

Deny's Bouillon Filtrate; in 1 Cc. vials; preserved with trikresol; for use in dilutions only. Also in serial dilutions.

Tuberculin, Koch (concentrated).—For the cutaneous reaction; in capillary pipettes.

Tuberculin, Purified; 1 per cent. solution, for the ophthalmic reaction.

Farbwerke vorm. Meister Lucius and Bruening, Hoechst a. M., Germany. (Victor Koechl & Co., New York.)

Tuberculin "Koch" (old), marketed in vials containing 1 Cc.

New Tuberculin "Koch" (T. R.), marketed in vials containing 1 Cc.

Koch's Bacilli Emulsion; marketed in vials containing 1 Cc.

Tuberculosis Diagnostic "Hoechst," Dry. Dried tuberculin free from glycerin, prepared from Tuberculin, Koch (old Tuberculin). To be used in 0.1 per cent. solutions for the tuberculo-ophthalmic reaction. Marketed in powder form and in 0.1 per cent. solution ready for use (in pipettes containing the amount necessary for one reaction).

H. K. Mulford Co., Philadelphia.

Tuberculin "Old" (O T.). Marketed in 1 Cc. vials; also in serial dilutions in 5 vials of 8 Cc. each progressing by doses of 2 minims containing 0.001 mg. to 2 minims containing 10 mg.; in rectal suppositories containing from 1 to 500 mg. tuberculin in cacao butter.

Tuberculin, Bouillon Filtrate, Denys. Marketed in 1 Cc. vials; *also in serial dilutions.*

Tuberculin "R." Marketed both in concentrated form and in serial dilutions.

Bacillin Emulsion "B. F." Marketed in 1 Cc. vials; also in serial dilutions.

Tuberculin Ophthalmic Test Solution. Prepared from the precipitate obtained on treating Tuberculin "Old" with 70 per cent. alcohol; ½ and 1 per cent. solutions in physiological salt solutions are made of the dried precipitate.

Tuberculin Ophthalmic Test Tablets. The precipitate as prepared above; each tablet contains 1 mg. dried tuberculin; to be dissolved in 0.13 Cc. (2 minims) of water.

Tuberculin Ointment. An ointment consisting of 50 per cent. of tuberculin "Old" with an equal part of adeps lanae hydrosus.

Parke, Davis & Co., Detroit, Mich.:

Tuberculin, "Old" (Koch). Marketed in ½ Cc. bulbs.

Tuberculin B. E. (contentrated). Bacillus Emulsion, marketed in bulbs containing 1 mg. of dry tubercle solids per Cc.

Tuberculin B. F.; marketed in 1 Cc. bulbs; contains 0.4 per cent. trikresol.

Tuberculin T. R. Marketed in 1 Cc. bulbs in 2 strengths; one contains 0.001 mg. of tubercle solids per Cc., the other 1 mg. per Cc.

Tuberculin Discs for the Ophthalmic Reaction. Prepared by precipitating concentrated tuberculin with alcohol. Each disc contains 3.3 mg. tuberculin which when dissolved in 0.3 Cc. (5 minims) of water makes a 1 per cent. solution.

Moist Dead Tubercle Germs. For use in making the bacillary emulsion for the tuberculo-opsonic test.

Bacterio-Therapeutic Laboratory, Asheville, N. C.

This laboratory is licensed to manufacture all tuberculin preparations including Watery Extract of Tubercle Bacilli (von Ruck) and Tubercle Bacilli Emulsions (von Ruck); they are supplied only to physicians who make special applications for them.

OTHER SERUM PRODUCTS

ANTIRABIC VACCINE.—An emulsion of the cords of rabbits that have died as a result of the subdural injection of fixed Rabies Virus. The fixed virus is obtained by the passage of Rabies Virus through a long series of rabbits until the animals die after a uniform period of incubation; this period may vary according to the strain of virus. The cords are removed from the rabbits and, as a rule, dried over potassium hydroxide for a period of from 2 to 15 days.

Use.—Antirabic vaccine is used for the preventative treatment of Rabies. Emulsions of the cords are prepared with broth or saline solution and injected subcutaneously. The "scheme of dosage" varies according to circumstances but the general principle consists in daily injections, beginning with an emulsion of a cord dried for from 8 to 14 days and gradually increasing until a "2 day" cord is used.

H. M. Alexander & Co., Marietta, Pa.

Antirabic Vaccine. The fixed virus is of the strain employed by the Hygienic Laboratory, Washington, D. C. An emulsion of vaccine in glycerin sufficient for one dose, together with a syringe and needle, is contained in a vacuum tube by which a low temperature may be maintained for a period of 36 hours. A dose is sent each day by mail; the treatment requires 18 to 22 days.

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[4] The directions given by some manufacturers as to the method of using and the conclusions to be drawn from the use of their preparations seem to the Council to be open to criticism in certain respects. Thus many firms [illegible] use in making dilutions; droppers are not [illegible] for use with strong solutions. Pipettes, accur[illegible] metric system, should be used.

The use of ready made "serial dilutions" as a routine practice is not to be commended. Such solutions deteriorate rapidly, especially in the presence of phenol or trikresol and the rate of such deterioration may not be the same in different *dilutions*; competent authorities think it desirable to limit the use of dilutions to one month or even less in the case of soluble tuberculins. Some firms state the date of manufacture on the labels; it is desirable that this should de done in all cases. Sufficient precautions are often not given as to the care necessary in passing from a weak to a stronger solution.

The dangers from the use of tuberculin in the eye are not sufficiently emphasized by some firms.

The "conclusions" which *some* manufacturers state may be drawn from a "positive reaction" seem to the Council to be in some cases stated too dogmatically.

Tuberculin Ointment Capsules (for the Moro Test). Consists of equal parts by weight of Koch's Old Tuberculin and anhydrous wool fat. Marketed in capsules.

ERYSIPELAS AND PRODIGIOSUS TOXINS (Coley).—Parke, Davis & Co., Detroit, Mich. A mixed culture of Streptococcus Erysipelatis and Bacillus Prodigiosus made according to the specifications of Dr. W. B. Coley. Marketed in 1 oz. bottles.

Action and Uses.—Loeb summarizes the results[1] of the treatment of sarcoma with these toxins as follows: "It is therefore likely that the treatment of inoperable sarcoma with the toxins of streptococcus and Bacillus prodigiosus leads to a cure in approximately 4 to 9 per cent. of cases. And some results obtained so far suggest that this method of treatment may prove of value as a post-operative procedure in diminishing the number of recurrences, and that in a certain number of cases it might limit the necessity for amputation of the limb in cases of sarcoma of the long bones. As to its mode of action, nothing definite can be stated, but it is likely that the toxins themselves, as well as the local and general reactions they produce, frequently affect the life of the sarcoma cells unfavorably."

The toxins are injected in gradually increasing doses, at first in a part of the body removed from the tumor, and later, if possible, directly into the tumor itself.

NORMAL HORSE SERUM.—Injection of this has been recommended in various conditions where the coagulative power of the blood is deficient, as in hemophilia, severe anemias and purpura with hemorrhagic tendencies. Applied locally to bleeding surfaces it is said to act as a styptic and to have a favorable action on septic wounds. There is, however, an element of danger in the use of this or any other serum in certain conditions (Anaphylaxis), and while this is slight because of the rarity of dangerous effects it is sufficient to make the use of serums for purposes in which their value is extremely doubtful a questionable procedure.

National Vaccine and Antitoxin Institute, Washington, D. C.

Sterile Normal Horse Serum. Marketed in syringes containing 10, 15 and 20 Cc.

(*To be continued*)

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

OLIVER T. OSBORNE, M.D.
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NEW HAVEN, CONN.

(*Continued from page 209*)

DIGESTANTS

The drugs which are used to aid digestion are hydrochloric acid, pepsin, pancreatin, and diastase.

The scientific indication for the administration of hydrochloric acid can only be obtained by analysis of a test meal which has been taken on an empty stomach. On the other hand, a careful analysis of the symptoms and signs of indigestion may develop the probability of an insufficiency of this acid, and its administration in small doses (and often five drops of the dilute acid in a wine glass of water, after meals, is sufficient) will improve the digestion and the appetite. It is very frequent, however, that hydrochloric acid is present in the stomach in excess, and then the use of hydrochloric acid as a drug would be contraindicated.

There seems to be no reason for substituting for hydrochloric acid, lactic acid, and, in fact, there seems to be no good therapeutic use for lactic acid, and it could well be omitted from the Pharmacopeia.

Whether nitrohydrochloric acid is a stimulant to digestion, or whether it has specific action in stimulating the liver, is rather doubtful. In conditions of sluggish liver or in conditions of jaundice or so-called biliousness, nitrohydrochloric acid has long been used, but it is doubtful, as above stated, if it can act any differently than does hydrochloric acid. To have a specific activity of the combined acids, nitrohydrochloric acid should be freshly made and should be strong. Therefore one or two drops, well diluted, of the acidum nitrohydrochloricum is more efficient than more of the acidum nitrohydrochloricum dilutum. However, as just stated, both the acidum nitrohydrochloricum and the acidum nitrohydrochloricum dilutum could well be omitted from the next Pharmacopeia. The same is true of the diluted nitric acid.

It may be here parenthetically stated that there is no reason for perpetuating in another Pharmacopeia the diluted hydrocyanic acid. As a gastric sedative or as a sedative expectorant it is a myth, unless a dangerous dose is administered.

The amount of pepsin that is used internally is continuously on the decrease. This must show that its therapeutic value as a digestant is much less than was supposed. It also probably shows that the small amount that is administered is of little value in aiding the digestion of an ordinary meal. Also, its value has been overestimated because it is so frequently given with hydrochloric acid, and the hydrochloric acid is what has aided the digestion, and not the pepsin. It is probably very infrequent that pepsin is much diminished in the stomach, or, if it is, that dilute hydrochloric acid will not stimulate its secretion to a sufficiency. To administer pepsin with an alkali, as is often done, is absurd, as the alkali will inhibit or even prevent its activity. To combine pepsin and pancreatin in one prescription, to be administered either before or after meals, seems absurd. The pancreatin might act as long as the contents of the stomach remained alkaline or neutral from the saliva or alkaline foods ingested, but probably in much less than an hour, ordinarily, its activity in the stomach must cease from the normal acidity which develops, and its activity would be permanently prevented, and by the time it reached the duodenum it would be inert.

As a menstruum, in various elegant liquid preparations, in which to administer disagreeable, irritant or bad tasting drugs, pepsin preparations may have value, but there certainly is no need for the large number offered by the National Formulary.

There is probably no reason for the administration of pancreatin internally. Pancreatin is of value when combined with its proper amount of alkali as a predigestant of protein foods. Its value for this purpose is very great.

Diastase preparations and malt preparations may have their use in aiding the digestion of starches, but ordinarily it is much better, when there is poor digestion of starches, to limit the amount ingested or to discover the particular starch that is the best digested. There is no amount of diastase or malt that will cure, or much aid, a diabetic.

ANTACIDS

To reduce hyperacidity or lessen abnormal acidity of the stomach the following drugs are valuable: sodium bicarbonate, magnesia, chalk, lime water, and some form of ammonia.

As it is always better to prevent than to cure, a proper regulation of the diet and the proper treatment of any inflammation of the stomach that may be present constitute the curative treatment of pyrosis, heart burn, and disagreeable sensations due to abnormal acidity of the stomach. The above medicinal treatments are purely symptomatic. The most used and the most satisfactory is probably the bicarbonate of soda, but constant repetition of this alkali tends, if not actually to injure the stomach, at least to do it no good, and may increase metabolic waste and cause actual loss of weight. This, of course, it cannot do in any series of doses, but if persistently taken for weeks or months, it certainly is not good treatment. Sodium bicarbonate taken just before a meal, in small doses, will probably quickly stimulate the outpouring of normal hydrochloric acid, and the digestion may be more quickly completed. The most disagreeable and abnormal stomach acidity, however, occurs two or three hours after a meal, and this may not be due to increased hydrochloric acid, but to lactic acid or other acids produced by fermentation. The bicarbonate of soda administered at this time will surely counteract the acidity and stop the disagreeable sensations, but will cause the production of gas, which often must be eructated.

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[1] Loeb: The Journal A. M. A., 1910, liv, 262.

It is not good practice to swallow bicarbonate of soda tablets or soda-mint tablets without previously either dissolving or at least crushing them with the teeth. A bicarbonate of soda tablet, as well as most tablets which contain salts, may irritate and cause inflammation of the mucous membrane of the stomach in the region where it drops and slowly dissolves. The swallowing of such tablets should be discouraged, and the same is true of the quite general mistake of sucking and then swallowing the concentrated solution of potassium chlorate tablets when there is slight sore throat. I believe that ulceration of the stomach can be caused by potassium chlorate concentrated solution thus swallowed.

Perhaps the next most active alkali is the aromatic spirits of ammonia, from a few drops to half a teaspoonful, given in plenty of water. This not only counteracts the acidity, but is a slight cardiac stimulant. The other results are just the same as with the bicarbonate of soda.

As the aromatic spirits of ammonia is one of the best preparations of ammonia, either for cardiac stimulation or as an antacid, there seems to be no reason for the spiritus ammoniæ in the next Pharmacopeia. There is also no reason therapeutically that the Pharmacopeia should recognize aqua ammoniæ fortior.

I might parenthetically now say there is no use for ammonium iodid in the Pharmacopeia, and no use for ammonium salicylate. It is also quite doubtful if ammonium bromid is less depressant than sodium bromid. It certainly is very much more disagreeable to take.

Magnesia, or magnesii oxidum, is a simple, and perhaps the simplest, antacid. It is hardly absorbed at all, slightly laxative in its action, and can probably only do harm when it is taken in large amounts for a long time, and then it may form concretions much as does bismuth when persistently taken, this in spite of its slight laxative action. In the form of the milk of magnesia it is one of the most elegant antacids offered. The magnesii oxidum causes less production of gas than does the magnesii carbonas, and there seems to be no reason for the preference of magnesii carbonas above the magnesii oxidum. The former might, therefore, be omitted from the Pharmacopeia. The magnesii oxidum ponderosum (heavy magnesia) seems superfluous.

Chalk in the form of the official creta præparata is antacid and slightly constipating. It is not as active as the other antacids, and the dose required is slightly larger. For children with hyperacidity of the stomach and intestines, with diarrhea, chalk mixture is often a simple symptomatic treatment, although free catharsis and a regulated diet is better treatment. If the bowels are constipated, milk of magnesia is better treatment.

Lime in the form of lime water (liquor calcis) is frequently used as an antacid, and frequently used in milk to prevent the formation of large curds. To be of much value, the dose should be larger than is generally used. It is slightly constipating. As an antacid a syrupy preparation of lime, as syrupus calcis, would seem contraindicated. There is probably no use in the next Pharmacopeia for syrupus calcis, the liquor calcis, when needed, answering all therapeutic purposes.

CARMINATIVES

Carminatives are used to increase peristalsis of the intestines and to promote eructations of gas from the stomach when such is present in abnormal amount, and often to prevent nausea from disagreeable tasting drugs, and as pleasant menstrua for any drug. The number in the Pharmacopeia is too great. It is probable that as carminatives peppermint, capsicum, cinnamon, anise cardamon and ginger represent all that are required.

If spearmint, or mentha viridis, be omitted from the Pharmacopeia it will do away with the adjective piperita and save unnecessary writing when peppermint is ordered.

It is doubtful if the fluidextract of capsicum is needed. The oleoresin of capsicum may be occasionally used.

It should be decided in the next Pharmacopeia which cinnamon is the best, and that alone should be made official. It seems unnecessary to have both a tincture and a spirit of cinnamon; the spirit is sufficient.

Anise and cardamon are much favored as carminatives, and ginger is often a valuable aromatic. It is doubtful if the fluidextract of ginger is needed, or the oleoresin; the tincture and the syrup are sufficient.

If the rest of the aromatics are removed from the Pharmacopeia, and if their oils, spirits and waters are removed, the Pharmacopeia will be considerably diminished in bulk.

CATHARTICS

In this age of constipation and the age in which a large number of people must take, or at least do take laxatives, the necessity for advising such people to use only the mildest has become evident. There has also gradually become less and less need of strong, drastic, irritant cathartics. Occasionally they may be indicated, but it is probably rare. It is probable that gamboge, colocynth and scammony could be dropped without any serious loss of cathartic efficiency.

The compound cathartic pill, containing, as it does, six cathartics, is a left-over, old, hereditary composition. This pill, however, is strongly favored by many surgeons and some internists, but it is very true and easily proved that a proper dose of other simpler cathartics would act as well. The vegetable compound cathartic pill is not needed.

Euonymus, with its extract and fluidextract, and leptandra, with its extract and fluidextract, could all be well omitted from the Pharmacopeia.

The number of preparations of aloes and rhubarb should certainly be reduced. It is doubtful if mastiche and myrrh have any activity, and probably do not do more in combination with aloes than perhaps to inhibit its solution. The tincture of aloes and myrrh, the pills of aloes and myrrh, the pills of aloes and mastiche, and the pills of aloes and iron (each physician should be able and capable of combining aloes and iron to suit his individual patient) could well be omitted.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, JANUARY 22, 1910

NORMAL AND PATHOLOGIC LOCALIZED DEPOSITS OF FAT

There occurs in many treatises on pathology and surgery a statement to the effect that lipomas commonly retain their size, and may even grow larger, at the same time that all the natural fat deposits of the body are being exhausted in cachexia or starvation. This phenomenon, if at all constant or even if frequent, has more than passing interest as a medical curiosity, for it indicates that one of the simplest of neoplasms, which seems to show no essential deviation in structure from the normal tissues from which it arises, does differ in some fundamental way as to its metabolism; and also, being a striking exception to the other fat tissues, this behavior of the lipomas should throw some light on the problems of fat metabolism. It is unfortunate, therefore, that most of the references to the behavior of lipomas in emaciation consist of general statements as above cited, without specific details; and Shattock, in a recent discussion of this topic, finds that the evidence which is available is not convincing, and cites a case in which the lipoma decreased in size when the patient lost weight. It would be well if practitioners having cases which furnish any evidence on this subject would put them on record now that the question has been raised.

With the physiologic behavior of lipomas as a text, Shattock has made a most interesting excursion into the comparative anatomy of localized fat deposits, which brings out certain new facts as well as others which are not generally familiar.[1] Many animals normally possess localized deposits of fat which are certainly normal in their physiologic behavior, being absorbed whenever the body needs the fat reserves, although anatomically they are often as distinctly circumscribed as the lipoma, and if it were not known that they were natural and constant in the group of animals in question they would probably be designated as lipomas. Perhaps the most familiar example is the "hump" of the camel, which is simply a mass of fatty tissue on which the animal draws in its journeys across the desert, finishing a particularly exhausting trip with the hump flabby and drooping. The hump of the zebu consists of both fat and muscle, and, as there is no mechanical function for the latter to perform, it is probably a storehouse of protein. The fat-tailed breeds of sheep use their remarkable appendages (which in some breeds are so large as to require that wheels be fastened under them to prevent abrasions from dragging) as a reserve in case of need, and a similar provision exists in the fat-rumped sheep. For the latter there is a striking human analogy in the fat masses of the buttocks and thighs of the Bushmen and Hottentots, which are said to become flabby as a result of deprivation of food, and which are circumscribed fat deposits distinct from the diffuse fat of general obesity. It is interesting to note that representations of this steatopygy are found in the relics of predynastic Egyptian art, indicating that in ancient times representatives of the Bushmen existed as far from their present South African home as the Nile valley, and even Crete. In time they were driven farther and farther south by the stronger races until they are now limited to a small area of the continent of which they were the primitive inhabitants.

In many hibernating mammals there are specialized masses of fatty tissue in the neck, which annually take on a great deposit of fat, but which are not simple adipose tissue. They contain a peculiar type of cell, rich in protoplasm, in which lie many small fat globules, entirely different from the large unilocular fat cells of ordinary fat tissue. This tissue is very vascular, and is properly considered to be a special organ with the function of storing fat with exceptional rapidity in a readily accessible condition. As is well known, human cretins frequently exhibit fat masses about the neck and axillæ, and Shattock finds that these correspond to the fat glands found in the neck of the hibernating mammals. The normal human neck also contains similar but less conspicuous fat glands, equipped with the same specialized vacuolated cells. In case of emaciation this fat is drawn on and the size of the masses decreases. Another interesting form of local fat deposit in the human being is exhibited in the so-called "sucking cushions" of infants, which lie in the cheek in front of the masseter muscles and prevent the cheek from being drawn in between the jaws in sucking. These structures seem to be localized masses of adipose tissue of the ordinary type, differing from the subcutaneous fat tissue neither in structure nor in chemical composition; practically they are encapsulated lipomas, and (which is of special significance) they do not give up their fat when the child becomes emaciated, but rather, by their persistence, become unusually conspicuous when the adjacent subcutaneous fat wastes away. Here, then, we have a normal prototype of the lipoma, in the form of a deposit of fat that is not available to the body as a reserve food-supply, and this fact makes it entirely probable that lipomas may have the same property of persisting independent of the existing conditions of fat depletion.

THE STATUS OF SERUMS, VACCINES, ETC.

With an increasing knowledge of the antitoxins, vaccines, viruses and similar products, comes the realization of their great importance as remedial agents. In this group we have vaccine virus, the greatest of all prophylactic remedies; diphtheria antitoxin, the greatest specific in bacterial diseases; tuberculin, of so much value in the diagnosis and treatment of tuberculosis; tetanus antitoxin, antirabic virus, and a large number of bacterial vaccines.

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[1] Shattock, S. G.: Normal Tumor-like Formations of Fat in Man and the Lower Animals, Proc. Roy. Soc. Med., 1909, ii. 176.

There is no class of remedial agents on which the physician should be better informed and none, unfortunately, concerning which it is so difficult to obtain a scientific and unbiased opinion. Only one of the drugs of this class—diphtheria antitoxin—is recognized by the present U. S. Pharmacopeia, and, although some of the others (vaccine virus, for instance) have been in use for some time, all are the subject of such active investigation at the present time and so many new facts concerning them are being discovered that it is extremely difficult for a practitioner to keep abreast of these developments.

Scientific and disinterested information concerning them is widely scattered and often not easily accessible; the result has been that physicians have become dependent to an unusual degree on the circulars issued by manufacturing houses. Some of these circulars are almost models of scientific accuracy; others, unfortunately, are far from accurate and the directions given for the use of the products are not even safe.

In order to meet in a certain measure this need for unbiased information concerning these agents, the Council on Pharmacy and Chemistry decided some time ago to include in New and Nonofficial Remedies a chapter on sera, viruses, vaccines and analogous products. The first report on this subject was published in THE JOURNAL, Sept. 18, 1909, and consisted simply of a list of the products of this class which legally may be sold in interstate commerce in the United States. The system of federal control exercised over them was also briefly outlined. At that time it was stated that descriptions of the individual products would follow; these are published this week in the Department of New and Nonofficial Remedies.

In order to aid the physician to a better understanding of these products and their uses, the officers of the Section on Pharmacology and Therapeutics invited a number of the foremost authorities of the country to take part, at the Atlantic City meeting, in a symposium on "The Present Status of Vaccine and Serum Therapy with Special Reference to the Products on the American Market." This symposium[1] appears in this issue, and, taken with the descriptions in New and Nonofficial Remedies, gives a survey of the field of serotherapy that is at once instructive and inspiring in its extent and detail. In these products the medical profession has an agency equally as potent and exact as drugs and one whose limitations are still unknown.

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[1] This symposium is complete in this issue except for one article which had to be left over until next week because of its unusual length. This is the article by Dr. B. A. Thomas, Philadelphia, on "The Results of Three Years' Experience in Bacterial Immunization."

JONNESCO AND STOVAIN

The publicity given to the visit of Professor Jonnesco to this country, and the extravagant way in which the newspapers have commented on his method of anesthesia, have awakened the desire in the minds of many physicians to know the exact status of spinal anesthesia.

Since Corning in 1885 demonstrated the possibility of producing surgical analgesia by intraspinal injection, in addition to cocain other drugs have from time to time been used for this purpose, among them novocain, eucain, tropococain, alypin and stovain. Each has had its enthusiastic advocates, though on account of the many annoying immediate effects, and frequent fatalities, as well as unfavorable sequelæ in the non-fatal cases, the method has at no time had a large number of permanent adherents. As previously stated in THE JOURNAL,[1] stovain is not a new anesthetic, but has been in use both as a local and general spinal analgesic since its discovery by Fourneau and its presentation to the profession by Haller in 1904.

On account of the depressing effects of all these drugs on the heart and respiration, spinal analgesia has been confined almost entirely to the low or lumbar injection for operations on the abdomen and pelvic viscera. Jonnesco uses with stovain a certain proportion of strychnin and asserts that thus the lethal effects on heart and respiration are overcome, permitting the use of the drug in the high or dorsal injection for operations on the upper portion of the trunk, the arms, neck and head. In this respect, it may be considered that Jonnesco's method, being an improvement over the employment of the analgesic drug alone, is entitled to stand by itself and to be judged without too great emphasis being laid on the shortcomings of the method as heretofore employed.

But the effects on these two vital functions are not the only serious shortcomings of this method of anesthesia, whether stovain or any other of the drugs named be employed. Holländer, who is rather an advocate of the method in many cases, admits that in abdominal operations the occurrence of unexpected hemorrhage with the patient conscious would seriously hamper the surgeon. Rehn says that surgeons generally agree that the high anesthesia is dangerous, and that it is more dangerous in the young than in the elderly in whom physiologic hardening of the tissues of the cord renders them less sensitive. He says further that there is little prospect of localizing the anesthetic in the subarachnoid space, and that it is strictly contraindicated in suppurations, disturbances in the central nervous system, widespread tuberculosis and in arteriosclerosis, which latter would seem greatly to limit its use in the very cases in which it is said to be most useful, on account of the frequent heart and nephritic accompaniments of arteriosclerosis. Propping's experiments show that a fluid of greater specific gravity than the cerebrospinal fluid quickly diffuses itself and may reach the medulla with fatal effect. It is to avoid this possibility that Jonnesco and others are careful not to allow the patient to lie in the fully recumbent position for some minutes after the injection.

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[1] Nov. 27, 1909, p. 1831, and Dec. 18, 1909, p. 2117.

Another serious objection has been stated by Spielmeyer, whose experiments on rabbits and examination of fatal cases showed that degeneration of the motor ganglion cells of the anterior horn takes place, to an irreparable degree in many cases, with a dose of 0.07 gm. of stovain. These cord changes did not take place immediately but some days or weeks after the injections. No direct reports of experiments on this point with the other spinal drugs have been noted, but it is not unreasonable to come to the conclusion that the injection of these drugs into the delicate structures of the cord and its membranes may have exactly the same disastrous results.

An article on Jonnesco's demonstrations in this country by Dr. J. J. Moorhead appears in this issue. Dr. Moorhead not only attended Professor Jonnesco's operations in New York, but followed him to Chicago and to Rochester, Minn., and consulted many prominent surgeons, to secure a consensus of opinion, and sums up the grounds on which hostile criticism of the method may be based. It is not to be understood that the method is here condemned entirely, nor that the somewhat radical conclusions of Dr. Moorhead's paper are fully approved. The attitude assumed is rather to allow credit for all of real merit that the modified method possesses.

It is to be remembered that Professor Jonnesco is one of the leading surgeons of his own country. For this reason, and also because he is a man of considerable wealth, it may be assumed that his research and work in surgery are in the interest of pure science. He is an enthusiast on the method of using stovain originated by him, and he deserves credit for his courage in coming to a country with whose language and customs he was not acquainted to demonstrate his method. It is unfortunate that so much publicity was given the matter in the sensational newspaper press after its own peculiarly inaccurate manner. This perhaps prejudiced the profession to a certain extent and detracted from such an impartial hearing as the method may have been entitled to.

The medical profession welcomes every new advance in the art and science of medicine, but it is right that it should not give its approval too easily until a method has passed most severe tests. As Dr. Moorhead says, we have had the opportunity of seeing this method in the hands of an expert, and if it makes no better showing under his direction, it certainly behooves the average man to use it only with the utmost precaution. There are undoubtedly cases in which this method of producing anesthesia is of service, but in the majority of instances, it is apparent that other methods are better.

PREVENTABLE WASTE OF LIFE

Especially significant as an indication of the progress for better health conditions is a pamphlet recently issued by the Provident Savings Life Assurance Society of New York, entitled "The State and the Death-Roll," and designed to show the increased waste of life from kidney, heart, brain and other non-communicable maladies in the past thirty years, in contrast to the reduction in the death-rate from contagious diseases. The author, Mr. E. E. Rittenhouse, president of the society, refers to the report of Professor Irving Fisher on national vitality, showing that over six hundred thousand human lives are needlessly sacrificed in the United States every year, and that about three million persons are constantly seriously ill in the United States, more than one-half of these illnesses being preventable. The financial importance of these statements to life-insurance companies is evident.

While the general death-rate and especially the death-rate from communicable diseases has been reduced, the rate from non-communicable diseases due primarily to personal habits, overwork, etc., has been largely increased. In proof of this, the following facts are cited: The death-rate for consumptives in the registration area in the United States has decreased 49 per cent. since 1880, while the death-rate from diseases of the kidneys has increased 131 per cent. in the same time. The death-rate from heart disease has increased 57 per cent., from apoplexy 84 per cent., and from all three 83 per cent. At the same time, the death-rate from heart, apoplexy and blood-vessel diseases in England and Wales has decreased 7 per cent. Particularly illuminating is the table showing the death-rate for different ages by decades from 1880 to 1907, that of Massachusetts and that of England and Wales being contrasted. Between the ages of twenty and thirty, the death-rate in Massachusetts has decreased 41 per cent., while between the ages of twenty-five and thirty-five it has decreased in England and Wales 34 per cent. Between the ages of thirty and forty, the death-rate in Massachusetts has decreased 15 per cent. and in England and Wales 25 per cent., but between the ages of forty and fifty the death-rate in Massachusetts has increased 35 per cent., while in England and Wales the rate from forty-five to fifty-five has decreased 11 per cent., making a total difference of forty-six lives per hundred between the ages of forty and fifty-five, the most valuable years of a man's life, in which England and Wales have gained while Massachusetts has lost. Mr. Rittenhouse concludes that this abnormal increase in the death-rate from non-communicable diseases is due to the early wearing out of vital organs due to excesses in eating, drinking, working and playing—in short, intemperate living and the strenuous life. He says: "The science of sanitation and disease prevention has steadily advanced and yet the death-rate from these degenerative maladies has increased by leaps and bounds. The fact that the mortality in the younger lives is decreasing is very gratifying, but it offers no excuse for ignoring the extraordinary increase in mortality in middle life and old age. We try to protect a man from a disease which another might give him, but, without the slightest help, permit him to die of a disease which he may unknowingly give himself."

As a remedy for existing conditions, Mr. Rittenhouse urges that the state inaugurate a systematic and permanent campaign of education for the prevention of diseases of all kinds by the distribution of health bulletins, the liberal use of health and medical inspectors and by other methods. He also suggests that the state provide free medical examinations, periodically, for any who may desire them, for the purpose of detecting disease in time to check and cure it. This plan, he says, would enlarge the work of the health departments and would require an increased staff of inspectors and medical examiners, but this would be well within the bounds of reason and would be amply justified by the results.

Mr. Rittenhouse's pamphlet is a most significant and encouraging evidence of the rapid growth of public opinion in favor of the prevention of disease and the conservation of life. When it is once thoroughly realized by business organizations and by commercial interests that the present waste of life means an enormous loss not only to the country at large, but also to the business interests themselves, steps will be taken to prevent the waste of life and energy which has been going on unchecked. This subject is of interest not only to capital as represented by the life-insurance companies and invested interests, but also to organized labor, since a large share of the preventable loss through sickness and death falls on the laboring man and his family.

SEROTHERAPY AND THE PHARMACOPEIA

Rosenau's remarks in this issue on "Why Vaccine Virus Should Be in the Pharmacopeia" are especially pertinent. No one conversant with modern medicine doubts for an instant that vaccine virus and some of the antitoxins and bacterial vaccines are of quite as great importance in the prevention and treatment of disease as many of the preparations at present in the Pharmacopeia and vastly greater than some. The last committee of revision made an important advance when it included serum antidiphthericum; it certainly may be taken for granted that the next committee will include an antidiphtheritic globulin and a number of other products of this general class. In view of the great importance of the subject, it is to be hoped that the pharmacopeial convention will elect as a member of the committee of revision some one who is a recognized authority on these subjects. Nothing will do more to restore the Pharmacopeia to its proper place in the eyes of the medical profession than the inclusion in its pages of those products of modern research which have become such invaluable additions to the armamentarium of the present-day physician.

Medical News

DISTRICT OF COLUMBIA

Society Meeting.—At the annual meeting of the Medical Society of the District of Columbia, January 3, the following officers were elected: President, Dr. Louis Mackall; vice-presidents, Drs. D. Olin Leech and Philip S. Roy; corresponding secretary, Dr. Dwight G. Smith; recording secretary, Dr. Henry C. Macatee; treasurer, Dr. Charles W. Franzoni; librarian, Dr. Edwin L. Morgan, and censors, Drs. D. Olin Leech, Henry B. Deale, Francis R. Hagner, James D. Morgan, and Raymond T. Holden.

COLORADO

Personal.—Dr. Mary E. Phelps, Cañon City, is about to leave for Europe, and during her absence her practice will be in charge of Dr. Minerva M. Knott, Sedalia, Mo.——Dr. Pruitt, Redstone, has been appointed physician of the Colorado Fuel and Iron Company, vice Dr. Lewis B. Paul, resigned.

Society Meeting.—The annual meeting of Mesa County Medical Association was held in Grand Junction, January 11, and the following officers were elected: Dr. P. Phelps Collins, Grand Junction, president; Drs. Harry Freudenberger, Grand Junction, and Robert B. Porter, Fruita, vice-presidents; Dr. Carl W. Plumb, Grand Junction, secretary-treasurer; Dr. Benjamin F. Miller, Grand Junction, delegate to the state association, and Dr. Francis D. Coltrin, Grand Junction, alternate.

Asylum Report.—In his annual report Dr. Alfred P. Busey, superintendent of the State Hospital, Pueblo, recommends the purchase of a farm near the hospital for colonization and open air treatment of patients. There are at present 896 inmates in the institution. When the three cottages provided for by the last legislature have been built, he claims that there will still be enough on the waiting list to more than fill the institution, necessitating other additions. The daily cost of maintaining each patient was forty-one cents.

FLORIDA

New Laboratory for State Board.—The State Board of Health is to erect a laboratory in Jacksonville, on property donated by the city at Raspberry Park. The proposed building will cost about $15,000, and will contain accommodation for experiments and investigation, incubator rooms, refrigerator rooms, offices, library and records. The laboratory is to be in charge of Dr. Henry Hanson, formerly of Milwaukee, Wis.

Personal.—Dr. John Halton, Sarasota, narrowly escaped drowning in Big Sarasota Pass, while fishing, December 29.——Dr. Charles E. Terry has been appointed health officer of Jacksonville. Dr. Joseph L. Romero, retiring health officer, was presented by the health department with a loving cup in appreciation of his services.——Dr. Gaston Day has been appointed city physician of Jacksonville.——Dr. James H. Randolph, chief physician of the Florida Hospital for the Insane, Chattahoochee, has resigned, to take effect April 1.——Fire in the Holder Block, Ocala, recently caused a damage of about $400 to the office of Dr. F. E. McClane.

ILLINOIS

Hospital News.—The Whiteside Hospital, Sterling, the only hospital in Whiteside county, was dedicated January 1.——The medical staffs of the state hospital are now placed in the new classification of medical assistant superintendents, physicians, assistant physicians, and medical interns.

Safeguarding the Babies.—Dr. Catherine Hedger, at a meeting of the Chicago Association of Day Nurseries, January 13, launched a movement to place all public nurseries in Illinois under the state law, the proposed law following in the general lines of the law at present in force in New York State.

Per Capita Cost of State Institutions.—The last quarterly bulletin of the Illinois Board of Charities gives the following as the net cost per capita of maintaining each of the state hospitals for the year: Chester, $44.69; Kankakee, $38.23; Peoria, $37.75; Anna, $37.54; Jacksonville, $34.15; Elgin, $33.88, and Watertown, $31.97.

Personal.—Dr. Carl G. S. Rydin has resigned from his position in the Kankakee State Hospital to take effect February 1.——The office building of Dr. William W. Huston, Good Hope, was seriously damaged by fire, January 10.——Dr. George L. Eyester, Rock Island, who has been under treatment in Chicago, has entirely recovered.——Dr. Ora L. Pelton, Jr., Elgin, will return from Europe about the middle of February.——Dr. Eli V. Rice, Chenoa, who has been seriously ill with inflammatory rheumatism, is reported to be convalescent. ——Dr. J. T. Black, one of the staff of the Illinois Asylum for Feeble-Minded Children, Lincoln, has resigned.——Dr. Jacob Huber, Pana, is reported to be critically ill.——Dr. George H. Brannon, Manhattan. who was recently operated on in St. Joseph's Hospital, Joliet, has returned home.——Dr. Joseph DeSilva, Rock Island, has been appointed a commissioner for the Joliet Penitentiary.

Chicago

Hospitals Benefit.—The net receipts of the annual charity ball amounted to $29,000, which is to be distributed among twelve institutions.——At a benefit given January 13, at the Illinois Theater for the endowment of a bed at St. Joseph's Hospital, $1,500 was netted.

Personal.—Dr. Eugene S. Talbot has been appointed a corresponding member of the Budapest Royal Society of Physicians.——Dr. John A. Cavanaugh has been appointed professor of otology, rhinology and laryngology in the Chicago Eye, Ear, Nose and Throat College.——Dr. Frank B. Earle has been elected surgeon of the local organization of the Society of Colonial Wars.——Dr. Richard H. Street has been appointed fleet surgeon of the Chicago Yacht Club.

INDIANA

Personal.—Dr. Warren S. Williams has been appointed local surgeon for the T. and C. I. Railroad at Kendallville.——Dr. Clay A. Ball, Muncie, was operated on for appendicitis, December 18.

Anatomic Society Incorporates.—A num [illegible] of Evansville have organized the Evansville [illegible], with the object of the study of practical anatomy. Drs. Walter R. Cleveland, Henry C. Knapp and Eugene C. Taylor have been elected directors.

Reciprocity with New York.—Dr. William T. Gott, Crawfordsville, secretary of the State Board of Medical Registration and Examination, announces that reciprocal relations as regarding physicians' licenses have been established between Indiana and New York, subject to the rules and regulations of reciprocity between the medical boards.

State Board Organizes.—The State Board of Medical Examiners and Registration met in Indianapolis, January 11, and organized by the election of the following officers: President, Dr. James M. Dinnen, Fort Wayne; vice-president, Dr. Solomon G. Smelser, Shirley; secretary, Dr. William T. Gott, Crawfordsville, and treasurer, Dr. Moses S. Canfield, Frankfort.

Elections.—The annual election of the Indianapolis Medical Society was held January 5, resulting as follows: President, Dr. Samuel E. Earp; vice-president, Dr. John L. Freeland; secretary-treasurer, Dr. Roscoe H. Ritter; councilors, Drs. Charles F. Neu, Alois B. Graham and Harry G. Gaylord; and delegates to the state association, Drs. David Ross, John H. Oliver and John A. McDonald.

Physicians' Protective Association.—The Protective Association of Physicians and Surgeons has been incorporated in Indianapolis, with a capital stock of $10,000. The officers of the organization are: President, Dr. Frederick A. Tucker, Noblesville; vice-presidents, Drs. Charles H. Emery, Bedford, and Thomas F. Spink, Washington, secretary and general manager, Fred I. Mills, Robinson, Ill., and treasurer, Dr. J. A. Garrettson, Indianapolis.

IOWA

Coming Meeting.—The Southwestern Iowa Medical Association will hold its annual meeting in Albia, February 17.

New State Board Secretary.—Dr. Guilford H. Sumner, Waterloo, the new secretary of the Iowa State Board of Health, has gone to Des Moines and assumed the duties of his office.

The Afflicted.—Dr. Joseph J. Flannery, Des Moines, who has been seriously ill at Mercy Hospital, Des Moines, is reported to be greatly improved——Dr. George E. Crawford, Cedar Rapids, underwent an operation for disease of the gall-bladder, January 1, in St. Luke's Hospital.——Dr. David A. Robertson, Williams, is reported to be seriously ill.——Dr. Harry R. Layton, Leon, is reported to be seriously ill with heart disease.——Dr. Anthony P. Donohoe, Davenport. who was recently operated on at Mercy Hospital, is reported to be convalescent.——Dr. Elijah W. Jay, Marshalltown, who was operated on for the removal of gall-stones in Augustana Hospital, Chicago, has returned to his home.——Dr. William L. Creswell, Danbury, was operated on for appendicitis recently.

Personal.—The office of Dr. John W. Dixon, Burlington, was entered by burglars, January 1, and $70 was stolen.——Dr. Everett E. Richardson, Webster City, has been appointed a member of the State Board of Health, vice Dr. Alexander M. Linn, Des Moines.——Dr. J. C. Ryan has been appointed professor of surgery in the Medical Department of Drake University, Des Moines.——Dr. Grover C. Coakley has purchased the interest of Drs. John W. Reynolds and Oliver S. Barber in the Physicians' Hospital at Preston, and will conduct the institution as a private hospital.——Dr. George M. Agan, mayor of Silver City, has resigned and will move to Glenwood.——Dr. Peter A. Bendixen, Davenport, has been appointed local surgeon for the Burlington System.

Society Meetings.—The Poweshiek County Medical Society, at its annual meeting, December 5, elected Dr. Clinton E. Harris, Grinnell, president; Dr. Delano Wilcox, Malcolm, vice-president; Dr. E. E. Harris, Grinnell, secretary-treasurer, and Dr. Charles D. Busby, Brooklyn, censor. Dr. Bert L. Eiker, Leon, a member of the State Board of Health, presented a paper on "Pellagra."——The thirty-seventh annual meeting of the Marion County Medical Society was held in Knoxville, December 9, and the following officers were elected: Dr. Ernest C. McClure, Bussey, president; Dr. Clarence E. James, Durham, vice-president; Dr. Corwin W. Cornell, Knoxville, secretary; Dr. Joseph W. Finarty, Knoxville, delegate to the state society, and Dr. Lewis E. Park, Tracy, censor.——Clinton County Medical Society, at its annual meeting, held in Clinton, January 5, elected Dr. Kurt Jaenicke, president; Dr. Frank N. Keefe, vice-president; Dr. Frank O. Kershner, secretary-treasurer; Dr. Grace Schermerhorn, librarian; Dr. John F. H. Sugg, delegate to the state society, all of Clinton; and Dr. George Hofstetter, Lyons, alternate.——At the annual meeting of Muscatine County Medical Society, December 30, the following officers were elected: President, Dr. Elbridge H. King, Muscatine; vice-presidents, Drs. Edward K. Tyler, Muscatine, and Francis H. Battey, West Liberty; secretary-treasurer, Dr. Jeff D. Fulliam, Muscatine, and censor, Dr. Alexander R. Leith, Wilton Junction.——At the last meeting of the Woman's Clinical Society, Des Moines, Dr. Lenna L. Means was reelected president; Dr. Sophie H. Scott, vice-president, and Dr. Jennie M. Coleman, secretary.

LOUISIANA

Slidell Sanatorium.—The Louisiana Antituberculosis League of New Orleans will erect two buildings 40 by 60 and twelve two-room cottages of frame construction at Slidell to cost $6,000.

Tuberculosis Sanatorium Site Donated.—The Great Northern Railway has donated a site for the St. Tammany Cottage Home for Tuberculosis, on one of the highest points in the parish, well drained and covered with pine trees. The railway has not only donated the site, but will dig an artesian well and transport the cottages and furnishings of the present sanatorium to the new site free of charge.

MAINE

Examiners of School Children Appointed.—At the meeting of the school board of Bangor, December 14, Drs. Blanche M. Mansfield, Harold H. Crane, Luther S. Mason and Harris J. Milliken were elected medical examiners of public schools of the city.

Medical Society Meetings.—The annual meeting of Kennebec County Medical Association was held in Augusta, December 30. Dr. Herbert E. Milliken, Waterville, was elected president; Dr. Richard H. Stubbs, Augusta, vice-president; Dr. Wellington Johnson, Augusta, secretary-treasurer; and Dr. Oscar C. S. Davies, Augusta, censor.——At the annual business meeting of Cumberland County Medical Association, held in Portland, December 10, Dr. Alfred King, Portland, was elected president; Dr. Charles B. Sylvester, Harrison, vice-president; Dr. Charles S. Knight, Portland, secretary; Dr. Arthur S. Gilson, Portland, treasurer; and Dr. Willis Bryant Moulton, Portland, censor.

MARYLAND

The Insane in Maryland.—In its twenty-fourth annual report, the State Lunacy Commission urges a bond issue of $500,000 to provide necessary buildings, etc., for the state care of the insane.——According to Dr. Arthur P. Herring, secretary of the State Lunacy Commission, there are 1,816 insane in the state hospitals, 924 in private sanitaria, 788 in asylums, and 88 in almshouses. There has been an increase during the year of 111.

Society Meetings.—The following officers were elected by the Prince George's County Medical Society at its annual meeting in Hyattsville, January 11: President, Dr. Guy W. Latimer, Hyattsville; secretary, Dr. Henry B. McDonnell, College Park; treasurer, Dr. Arthur O. Etienne, Jr., Berwyn; delegate to the state society, Dr. Charles A. Fox, Beltsville, and alternate, Dr. Lewis A. Griffith, Upper Marlboro.——Allegany County Medical Society, at its annual meeting in Cumberland, January 12, elected the following officers: President, Dr. Emmett L. Jones, Cumberland; vice-president, Dr. Algernon G. Smith, Midland; secretary-treasurer, Dr. Charlotte B. Gardner, Cumberland; censor, Dr. Thomas W. Koon, Cumberland; delegates to the state society, Drs. Timothy Griffith, Frostburg, and John E. Legge, Oakland, and alternates, Drs. J. Marshall Price, Frostburg, and Henry W. McComas, Oakland.

Baltimore

Deaths from Violence in 1909.—During 1909, there were 288 fatal accidents in Baltimore. Of these 57 were due to drowning, 48 to burns, 37 to railway injuries, 20 to street car injuries, 15 to falls, 8 to accidental poisoning, and 95 to suicide.

To Aid Widows and Orphans.—A concert, supper and sale is to be held in the new Medical Hall, February 2 and 3, for the benefit of the Ladies' Auxiliary of the Widows' and Orphans' Fund of the Medical and Chirurgical Faculty of Maryland.

Personal.—Dr. George B. Reynolds, a police surgeon, has been detailed to instruct the police in first-aid.——Drs. Henry M. Baxley, Edward E. Mackenzie and Edmund A. Muñoz have been reelected attending physicians to the Baltimore General Hospital.——Dr. Harry Adler has been reelected president of the Hebrew Hospital.——Dr. Harry Friedenwald has been elected president of the Jewish Home for Consumptives.——At a reception given by the Board of Lady Managers of the Presbyterian Eye, Ear and Throat Charity Hospital, January 10, in honor of the thirtieth anniversary of the connection of Dr. Herbert Harland with the institution, a silver loving-cup was presented to Dr. Harlan.

The Work Against Tuberculosis.—The Maryland Association for the Prevention and Relief of Tuberculosis recommends the establishment of a municipal dispensary for tubercular patients, and urges the legislature to appropriate at least $10,000 a year for the antituberculosis work of the State Board of Health. It recommends the separation of the Hospital for Consumptives from Bayview Asylum (the city almshouse), and the increase of the capacity of the hospital to 500 beds. It also recommends the establishment under the board of managers of the State Tuberculosis Sanatorium of a farm colony for colored consumptives. During last year the traveling exhibit of the association visited every county in the state; 267 free lectures were given before about 130,000 persons; 126,500 separate pieces of literature were distributed, local associations were organized in four counties, and a special tuberculosis dispensary was maintained at Fell's Point in southeast Baltimore.

MISSISSIPPI

Personal.—Dr. Albert G. McLaurin, Brandon, has been elected physician to the Rankin Prison Farm; Dr. McCallum has been reelected physician of the Sunflower Farm, and Dr. Christmas of the Belmont Farm.——Dr. Nolan Stewart has been appointed superintendent of the Mississippi Insane Hospital Asylum, vice Dr. Thomas J. Mitchell, to take effect on Dr. Mitchell's retirement, May 3.——Drs. Taylor H. Henry and William H. Cryer have been elected members of the board of health of Columbus.

Society Meetings.—At the annual meeting of Jefferson County Medical Society, held in Fayette, December 7, Dr. Daniel C. Warren, Perth, was elected president; Dr. William H. H. Lewis, Fayette, vice-president; Dr. John C. McNair, Fayette, secretary; Dr. Sherrod R. Towns, Union Church, delegate to the state association, and Dr. G. T. Warren, alternate.——At the meeting of the Winona District Medical Society, held in Winona, January 4, the following officers were elected: Dr. James O. Ringold, Vaiden, president; Drs. John W. Young, Grenada, James P. Wiggins, Eupora, Henry J. Small, Winona, and Graham W. Diggs, Black Hawk, vice-presidents, and Dr. John W. Banksdale, Vaiden, secretary-treasurer (reelected).——At the annual meeting of Adams County Medical Society, held in Natchez, January 4, Dr. McDonald Watkins was elected president; Dr. John W. D. Dicks, vice-president; Dr. Jacob S. Ullman, secretary; Dr. Richard D. Sessions, delegate to the state association, all of Natchez, and Dr. Paul L. Bellenger, censor.——The Brookhaven Doctors' Club, at its annual meeting, held December 28, elected Dr. Norman A. McLeod, president; Dr. Oscar N. Arrington, vice-president, and Dr. Dudley W. Jones, secretary.——Forest County Medical Society, at its annual meeting in Hattiesburg, elected Dr. Emmett Dill, president; Dr. Prentiss A. Carter, vice-president; Dr. Fern Champenois, secretary-treasurer; Dr. Lawrence D. Hudson, councilor; Dr. Isham H. C. Cook, delegate to the state association, and Dr. Leonidus H. Martin, censor, all of Hattiesburg.

NEBRASKA

Money for Health Bureau.—Health Commissioner Connell, Omaha, has made requisition for $28,000 for the use of the health department for the coming year. Last year $16,900 was apportioned for the use of the department.

Site for Medical School.—Formal transfer of six lots at Forty-second and Jackson streets, Omaha, has been made to the regents of the University of Nebraska, and the site will be used as a location for the new medical school of the university.

Personal.—Dr. Lawrence T. Moore, Campbell, recently suffered the loss of a hand by the accidental discharge of a shotgun.——Dr. Sherman J. Jones, Minden, has returned from Europe.——Drs. Radfield and Josiah R. McKirahan, Grand Island, have assumed charge of a hospital at North Platte.

Election.—Saline County Medical Society, at its recent meeting in Crete, elected Dr. Francis J. Stejskal, Crete, president; Dr. Howard W. Quirk, Crete, vice-president, and Dr. George E. Henton, Friend, secretary-treasurer.——York County Medical Society, at its annual meeting, elected Dr. Orville M. Moore, York, president; Dr. John W. Meehan, York, vice-president, and Dr. James N. Plumb, York, secretary-treasurer.

NEW HAMPSHIRE

Society Meetings.—The sixth annual meeting of the Grafton County Medical Society was held in Woodsville, December 14, and the following officers elected: President, Dr. Frank A. Smith, Lebanon; vice-president, Dr. William E. Lawrence, North Haverhill; secretary-treasurer, Dr. George A. Weaver, Warren; censor, Dr. George W. Hazleton, Haverhill; member of committee on public health and legislation, Dr. Claude M. Sneeden, Littleton; delegates to the state society, Drs. Edward O. Crossman, Lisbon, and Charles R. Gibson, Woodsville, and alternates, Drs. Elmer H. Carleton, Hanover, and Elmer M. Miller, Woodsville.——At the annual meeting of the Nashua Medical Society, held January 6, the following officers were elected: President, Dr. Herbert L. Smith; vice-presidents, Drs. William E. Reed and Arthur L. Wallace; secretary, Dr. Eva M. Locke; treasurer, Dr. Patrick J. McLaughlin, and historian, Dr. Charles B. Hammond.

Hospital Staff Organized.—The augmented staff of the Notre Dame Hospital, Manchester, has organized with the following officers and members: President, Dr. Gustave Lefontaine; vice-president, Dr. Evariste C. Tremblay; secretary, Dr. Leon J. Lacassee; surgeons, Drs. Joseph E. Larochelle, Noel E. Guillet, Frederick H. Perkins, George S. Foster and Wilfred L. Biron; physicians, Drs. Gustave Lefontaine, Edouard N. Fugere, Irving L. Carpenter, J. R. Pepin and Leon J. Lacasse; specialists, Dr. Evariste C. Tremblay and Alfred A. Macleay, and pathologist, George A. Foster.

NEW JERSEY

Personal.—Dr. S. Leslie West severed his connection with the Westmont Hotel and Sanitarium Company, Atlantic City, November 24 last.——Dr. Richard M. Davis has been reappointed a member of the Salem Board of Health.——Drs. W. Scott Smith and Ellen B. Smith, Salem, will sail for Europe February 1.——Dr. Harry J. Moss, of Woodbine, has been appointed assistant superintendent of the Mount Sinai Hospital, New York City.——Dr. N. Howard Burt has been elected president of the Ocean City Board of Health.——Dr. Henry B. Diverty has been made secretary of the newly organized Board of Health of Woodbury.

Society Meetings.—At the annual meeting of Monmouth County Medical Society, held in Freehold, December 14, the following officers were elected: Dr. Harry B. Slocum, Long Branch, president; Dr. Peter P. Rafferty, Red Bank, vice-president; Dr. Edwin Field, Red Bank, secretary; Dr. Isaac S. Long, Freehold treasurer; Dr. Peter P. Rafferty, recorder, and Drs. Isaac S. Long, Freehold, Harry B. Slocum, Long Branch, and D. Edgar Roberts, delegates to the state society. ——At the annual meeting of the Camden City Medical Society, January 4, the following officers were elected: President, Dr. William H. Pratt; vice-president, Dr. Joseph W. Martindale; secretary, Dr. William I. Kelchner; treasurer, Dr. Joseph H. Wills; and historian, Dr. Albert B. Davis.

NEW YORK

Convalescent Home for New York Poor.—The people of Otisville have purchased a farm of 140 acres near the village and have stocked it for the purpose of establishing a home for convalescent women and children of New York City in the summertime and to help sick mothers in the winter.

Annual Meeting of State Society.—The one hundred and fourth annual meeting of the Medical Society of the State of New York will be held in Albany, January 25 and 26, under the presidency of Dr. Charles G. Stockton, Buffalo. The program includes symposiums on vaccine therapy and appendicitis. The annual banquet will be held at the Hotel Ten Eyck, January 26.

County Laboratory Established.—The Monroe County Pathologic Laboratory has been established in Rochester under the charge of Dr. Charles Hennington. Monroe is the fifth county in the state to take advantage of the enabling act, making provision for the more accurate laboratory diagnosis of such diseases as tuberculosis, diphtheria and typhoid fever, in order to safeguard the public health of country communities.

Ophthalmia Neonatorum.—Dr. Eugene H. Porter, State Commissioner of Health, reports that the bureau in the state department created a year ago to forward the work among physicians for the prevention of blindness among the newborn has accomplished excellent results. Registered physicians throughout the state have pledged themselves to the use of silver nitrate solution sent out by the health department. The New York Committee on Blindness is cooperating with the State Health Department.

Need of Efficient Surgery in Prison.—The report of the State Prison Commission just made public states that proper medical attention can do more to reform some convicts than prisons. Sing Sing's hospital department, under Dr. Lettice, has been materially improved, particularly in the surgical department. It is urged that every prison should supply its surgeon with modern appliances, an assistant physician and a trained nurse, as one of the serious troubles in state prisons is that ample attention has not been paid to diseases amenable to surgery among convicts. Unfortunates are released from prison with physical imperfections which handicap them in their struggle for a livelihood. The commission reports conditions in a number of the station houses and prisons as regards cleanliness and sanitation that are a disgrace to those responsible for them.

Insurance Company May Erect Sanatorium.—Superintendent Hotchkiss of the State Insurance Department announces that the department has approved the application of the Metropolitan Life Insurance company for permission to purchase land in Westchester county to build and maintain there a tuberculosis sanatorium for its employees who may be afflicted or threatened with tuberculosis. When application for the establishment of such a sanatorium was made some months ago, the superintendent doubted whether under the charter of the insurance company such a step would be legal. A friendly suit was begun in the supreme court to decide whether this purchase of land was "necessary for its convenient accommodation in the transaction of its business," as the insurance law stipulates in regard to the purchase of real estate by insurance companies. The court declared that the superintendent had the right to approve or reject the application at his discretion.

Work of State Charities Aid Association.—At the annual meeting of the State Charities Aid Association it was stated that the work of this organization for the suppression of tuberculosis was beginning to be apparent, though statistics did not as yet show much decrease, which was probably due to a more truthful assignment of that cause of death where formerly other causes had been assigned. There are still 15,000 deaths annually in this state from tuberculosis. The almshouse has become a diminishing factor in the charities problem. During the thirty years from 1878 to 1908 the inmates of almshouses actually decreased from 7.1 per cent. to 6.7 per cent. In the same period the inmates of state institutions for curative treatment of special diseases, reformatory treatment and custodial care of permanent defectives increased from 3,000 to 36,000, of whom 27,000 are in state hospitals for the insane. The association has at present 70 anti-tuberculosis committees in the state with a membership of over 3,000. Tuberculosis exhibits were sent to 41 county fairs and to the state fair. Last year 511 persons were received in the insane asylums from penal institutions. At present the insane are increasing at the rate of 1,000 a year.

New York City

New Health Commissioner.—Dr. Ernest J. Lederle has been appointed Health Commissioner to succeed Dr. Darlington. The complaints that Brooklyn did not receive sufficient attention during the last administration will receive attention. Dr. Lederle will spend a part of three days every week in the Brooklyn office where he will be ready to hear suggestions for the improvement of the service in that borough.

Gifts to Charity.—At the last meeting of the trustees of Columbia University it was announced that $10,000 had been received for the equipment of the medical and engineering schools, and William K. Vanderbilt, Clarence H. Mackay and Alexander Smith Cochran each gave $2,500 for special maintenance. The university hopes to erect a building for cancer research in the near future.——Mr. John Berwind of New York and Newport has donated $100,000 to the Maternity Outdoor Clinic on East Seventy-sixth street.——By the will of Mitchell Valentine the Presbyterian and Hahnemann Hospitals will each receive about $900,000.

NORTH CAROLINA

Violates Revenue Laws.—Dr. S. A. W. Hayes, Rutherfordton, is said to have been sentenced to fifteen months' imprisonment in the federal prison for violation of the internal revenue laws, and also to have been fined $100.

Personal.—Dr. John R. Williams, Greensboro, president of the antituberculosis association, who has been seriously ill with typhoid fever, is reported convalescent.——Dr. W. G. Bradshaw, High Point, has been seriously ill with ptomain poisoning.

Tri-County Society Meeting.—The Medical Society of Pasquotank, Camden, and Dare counties, met January 6 in Elizabeth City and elected the following officers: President, Dr. Claude B. Williams; vice-president, Dr. Charles W. Sawyer, and secretary-treasurer, and delegate to the state society, Dr. Isaac Fearing, all of Elizabeth City.

OHIO

Medical Student Dies.—Harry T. Simmons, a junior student at the Western Reserve Medical College, Cleveland, fell in a hospital clinic recently, sustained a fracture of the base of the skull, and died on the operating table.

Reinstated in Practice.—At a meeting of the State Board of Medical Examination and Registration in Columbus, January 4, Dr. James N. Nelson, Alliance, was reinstated as a practitioner without restrictions. The action was taken on recommendation of the Stark County Medical Society.

Physician Freed by Jury.—The Clermont county grand jury, which, on October 21, returned an indictment against Dr. John D. Wakefield, Loveland, for perjury, based on testimony given by the physician in a damage suit against the Baltimore and Ohio Southwestern Railway, acquitted him December 24, after a four days' trial in the common pleas court.

Society Meetings.—At the annual meeting and banquet of the Columbus Woman's Medical Club, December 7, Dr. Susanna L. Bryant was elected president; Dr. Ida M. Wilson, vice-president, and Dr. Marinda E. Blackburn, secretary-treasurer.——Dr. John S. Tierney has been elected chairman, Dr. Willard C. Stoner, vice-chairman, Dr. Hiram B. Ormsby, secretary, and Dr. Samuel L. Bernstein, councilor, of the clinical and pathologic section of the Cleveland Academy of Medicine.

Health Officers to Meet.—The annual Conference of the State Board of Health and City and Village Boards of Health will be held in Columbus, January 20 and 21: Among the speakers will be Dr. Cressy L. Wilbur, chief of the vital statistics division of the Census Bureau, Surgeon Leslie L. Lumsden, P. H. and M.-H. Service, Dr. William C. Woodward, health officer of the District of Columbia, Rufus B. Miles of the Bureau of Municipal Research, Cincinnati, and Dr. Luther H. Gulick, New York City.

Limit Itinerant Medicine Vending.—A bill prepared by the state pharmacy board and the state association of pharmacists, to prevent itinerant vending of medicine, which will be presented to the legislature, provides that before any person or firm may sell medicine from house to house a license costing $250 must be obtained from the board, and applicants must satisfy the board that medicines are not dangerous to life. For sale without license a fine of from $100 to $200 is imposed, and for the second conviction, a fine of from $200 to $400.

Academy Election.—At the annual meeting of the Cincinnati Academy of Medicine, held January 3, the following officers were elected: President, Dr. Samuel E. Allen; vice-presidents, Drs. Robert Carothers and William D. Porter; secretary, Dr. E. Otis Smith; treasurer, Dr. Alexander G. Drury; librarian, Dr. Arch I. Carson; trustee, Dr. Asa B. Isham; censor, Dr. Edwin W. Mitchell; delegate to the state association, Drs. Magnus A. Tate, Charles L. Bonifield and William D. Haines; member of the auxiliary committee of public safety and legislation of the Ohio State Medical Association, Dr. Charles A. L. Reed; and delegates to the Antituberculosis League, Drs. Benjamin F. Lyle, Allan Ramsey and John H. Landis.

May Not Practice in Ohio.—The decision is said to have been reached by the governor and the attorney general who make up the board of appeals from decisions of the State Board of Medical Registration and Examination on December 14, that it has no jurisdiction to compel the board to grant an Ohio certificate to Dr. Reuben G. Woodworth, Colorado City, under the reciprocity arrangement with the State Board of Medical Examiners of Colorado, where Dr. Woodworth practiced after leaving Columbus. The question involved is the failure of the Colorado board to testify in the reciprocity certificate as to the character and fitness of the physician certified.

Bills on Behalf of State Board of Health.—Dr. Charles O. Probst, Columbus, secretary of the State Board of Health, has prepared three bills to be introduced in the legislature, the first authorizing the establishment of a bureau for the prevention of infectious diseases, and providing for the division of the state into not to exceed twelve districts, with the appointment of a properly qualified physician as medical inspector for each district to enforce health and sanitary regulations; the second authorizing the State Board of Health to manufacture antitoxin for the cure and prevention of diphtheria for free distribution, and the third providing that all school children shall be examined annually by their teachers and tested for sight, hearing and obstruction of breathing.

Fined for Violations of Law.—In the case of Dr. Francis M. Murray, Delaware, charged with violation of the Rose law in the issuance of prescriptions for liquor, the defendant is said to have been found guilty and fined $250 and costs. The judge, in his decision, called especial attention to the fact that the person who had procured the prescription did not state that he was ill, but simply asked for liquor. It was shown that the defendant had issued nearly 1,000 prescriptions during the previous two months.——Dr. N. V. Speece, Quincy, charged with issuing illegal prescriptions for liquor, is said to have been found guilty and fined $250 and costs, and prohibited from writing prescriptions for liquor for two years.——George H. Schubert, a real estate agent of Springfield, is said to have been fined $25 and costs, December 14, for the illegal practice of medicine.

PENNSYLVANIA

Sale of Christmas Stamps.—J. Byron Deacon, executive secretary of the Pennsylvania Society for the Prevention of Tuberculosis, has issued a statement that although the report of the sale of Red Cross Christmas stamps is as yet incomplete, it is safe to say $20,000 had been raised outside of Pittsburg and that $5,000 has been secured in that city.

Officers Elected.—At the meeting of the Delaware County Medical Society, held in Chester, January 14, the following officers were elected: President, Dr. Francis N. Baker, Media; vice-president, Dr. D. Forrest Harbridge, Chester; secretary, Dr. Charles I. Stiteler, Chester; treasurer, Dr. Daniel W. Jefferis, Chester; reporter, Dr. Walter E. Egbert, Chester; librarians, Drs. Samuel Trimble, Newtown Square, and Amy E. White, Chester; censors, Drs. J. Harvey Fronfield, Media, Frederick H. Evans, Chester, and Horace F. Taylor, Ridley Park, and district censor, Dr. Daniel W. Jefferis, Chester.——The Lancaster County Alumni Association of the University of Pennsylvania held its annual meeting in Lancaster, January 1 and elected Dr. William H. Trout, president, Dr. William G. Fox, vice-president, and Dr. Charles P. Stahr, secretary-treasurer.

Philadelphia

Bequests.—The will of the late Anna E. Porter bequeathes $10,000 to the Methodist Hospital for a free room to be known as the "Porter Memorial."

Personal.—The degree of doctor of laws was conferred on John Herr Husser, M.D., *professor of clinical medicine in the* University of Pennsylvania by *Franklin and Marshall* College, Lancaster, Pa., January 7.

Appropriations to H [illegible] ast fifteen years the Medico-Chirurgic [illegible] in state appropriations $1,350,000, Jefferson $1,275,000, and the University Hospital $970,000. The Medico-Chirurgical received $670,000 for improvements in the same period, Jefferson $550,000, and the University $125,000.

Physicians' Motor Club.—At the initial banquet of the newly formed Physicians' Motor Club, held January 11, a movement was started to have the same police regulations now governing ambulances apply to doctors' automobiles. The following officers were elected: President, Dr. S. *Leon Gans*; vice-presidents, Drs. L. Webster Fox, Edward E. Montgomery and Solomon Solis-Cohen; secretary, Dr. Sylvester J. Deehan, and treasurer, Dr. J. Gurney Taylor.

Doctors War on Smoke Nuisance.—A movement to do away with the smoke nuisance has been started by the physicians of this city under the leadership of Dr. S. Weir Mitchell. It will be supported by the county medical society, the civic and business men's associations and the Department of Health and Charities. Better standards have been attained in both food and water in the last few years, but the supply of air has deteriorated, particularly since the coal strike in 1902, by the increased use of bituminous coal as fuel within the city limits. The recent snow storm has served to show how the smoke from the chimneys, locomotive stacks and factory funnels permeates the air before it finally settles.

Faith Curist Convicted.—For permitting his 6-year-old son to die without medical attention, Thomas A. Gibson was convicted of involuntary manslaughter in Quarters Session Court before Judge Kinsey, January 6. Gibson is a follower of a self-styled "divine healer" of Faith Tabernacle at Second street and Lehigh avenue. Dr. Jesse A. Bolin, former coroner's physician, testified that the child had been suffering from chronic nephritis with edema that had distended the abdomen almost to bursting. This condition had existed for three months and when the child's abdomen was tapped in performing the autopsy, three gallons of water were removed. The defendant's only excuse was that he did not believe in doctors.

Officers Elected.—At the meeting of the Northern Medical Association, held January 14, the following officers were elected: President, Dr. William A. Brady; vice-presidents, Drs. Thomas Shriner and O. Luther Latchford; treasurer, Dr. John W. Millick; secretary, Dr. Paul F. Bremer; censor, Dr. Albert Bernheim; corresponding secretary, Dr. Thomas R. Currie; and librarian, Dr. Howard D. Geisler.——At the meeting of the Pediatric Society held in the College of Physicians on January 11, the following officers were elected: President, Dr. Charles A. Fife; vice-presidents, Drs. James T. Rugh, Theodore Le Boutillier and Arthur Newlin; treasurer, Dr. Howard C. Carpenter; librarian, Dr. Charles F. Judson; and secretary-recorder, Dr. Maurice Ostheimer.

TEXAS

Personal.—Dr. Louis H. Kirk has been appointed health officer of Austin, vice Dr. William J. Mathews, resigned.——Dr. B. M. Jones, Boyd, was stabbed in the right lung in an affray, December 17.——Dr. Marshall M. Chandler, Greenville, was presented with a loving cup by the Hunt County Medical Society, in recognition of his long and persistent support of the organization.——Dr. John W. Overton, Lubbock, has been appointed surgeon of the Santa Fe System at Sweetwater.

Society Meetings.—The sixtieth semi-annual session of the North Texas Medical Association, District No. 14, was held at Fort Worth, December 14-16. Dr. Alva W. Carens, Hutchins, was elected president; Dr. Francis M. Teas, Denison, vice-president; Dr. H. Leslie Moore, Dallas, secretary, and Dr. Thomas W. Crowder, Sherman, treasurer. The association adjourned to meet in Sherman in June.——The South Texas District Medical Association, comprising the medical societies of the Ninth and Tenth Councilor districts, met in Galveston, December 9. Dr. William Keiller, Galveston, was elected president; Dr. D. Stuart Wier, Beaumont, vice-president; Dr. Edward F. Cooke, Houston, secretary-treasurer (reelected). Houston was selected as the place for the next semi-annual meeting.——The Seventh Councilor District Medical Society held its annual meeting in Austin, December 16, and elected the following officers: Dr. Washington A. Harper, Austin, president; Dr. Lewis B. Bibb, Austin, secretary-treasurer, and Drs. Edward M. Thomas, Georgetown, S. E. Hudson, Austin, Benjamin M. Worsham, El Paso, James C. Anderson, Granger, and Howard B. Granberry, Austin, censors.——The physicians of Hale county met at the residence of Dr. J. D. Hanby, Plainview, December 18, and organized the Hale County Medical Society.

VIRGINIA

Elections.—At the annual meeting of the Richmond Academy of Medicine held December 14, the following officers were elected: President, Dr. Charles R. Robins; vice-presidents, Drs. George P. LaRoque, J. Fulmer Bright and Alexander G. Brown; secretary, Dr. W. Brownley Foster; treasurer, Dr. William A. Shepherd, and librarian, Dr. George P. LaRoque.——Physicians of Augusta county have incorporated the Augusta County Medical Association without capital *stock* and with the following officers: Dr. John B. Catlett, president; Dr. Hunter B. Spencer, secretary; and Drs. Edwin L. Gibson and Marshall J. Payne, all of Staunton.——Lynchburg Medical Society, at its annual meeting, January 3, elected

Dr. George J. Tompkins, president; Dr. John J. Lloyd, vice-president; Dr. Victor V. Anderson, secretary; Dr. J. Paulett Clark, treasurer, and Drs. James Morrison and Ferdinand M. Perrow, censors.——Petersburg Medical Society has elected Dr. Leverett S. Early, president; Dr. Hampden A. Burke, vice-president; Dr. Julian R. Beckwith, corresponding secretary; and Dr. William C. Powell, secretary-treasurer.

WISCONSIN

Inspection of Sanitation of Students' Quarters.—All boarding and rooming houses occupied by students of the University of Wisconsin are henceforth to be under the inspection of the faculty committee on hygiene, consisting of Dr. Mazyck P. Ravenel, chairman; Dr. W. D. Frost, bacteriologist; Dr. Charles H. Bunting, pathologist; Dr. J. Helen Dobson; Dr. Joseph Erlanger, physiologist; and Dr. A. S. Lovenhart, of the department of pharmacology and toxicology.

Hospital Officers and Staff Elected.—The directors of the Johnston Emergency Hospital, Milwaukee, on January 5, elected the following officers: President of the medical and surgical staff, Dr. Robert G. Sayle; Dr. Daniel Hopkinson, secretary; president of the board of trustees, Dr. Frank B. Golley, and secretary of the board of trustees, Dr. Ralph Elmergreen. The following staff was chosen: Surgeons, Drs. William F. C. Witte, Curtis A. Evans, Frederick J. Gaenpsen, Robert G. Sayle, Henry F. Kortebein, Willard T. Nichols, Ralph Elmergreen, John L. Yates, Ralph P. Peairs, Filip Forsbeck, Daniel Hopkinson, Arthur T. Holbrook, Philip F. Rogers, Gerhard A. Bading, Maurice L. Henderson, William E. Kramer, William A. Sickels, Edward J. Purtell; physicians, Drs. Arthur J. Patek, James D. Madison, Oscar E. Lademann, William Ackerman, Peter Langland, Franklin H. Hagerman, Louis F. Jermain, Lewis C. Tisdale, Rudolf F. Teschan, Milton M. Spitz, Thomas C. Malone, and Alfred L. Kastner; gynecologists, Drs. John T. Scollard, Warren B. Hill, and George A. Carhart; ophthalmologists, Drs. Gilbert E. Seaman, William S. Stanley, and Charles J. Coffey; dermatologists, Drs. Leopold Schiller and Otto H. Foerster; pediatricians, Drs. Lorenzo Boorse, Albert W. Myers and Alfred W. Gray; alienists, Drs. William F. Wegge, William F. Becker, Moses J. White, Frank C. Studley and Richard Dewey; and pathologists, Drs. Wilhelm Becker, George C. Ruhland and Gustave A. Landman.

GENERAL NEWS AND COMMENT

New Hospital for Cebu.—Cebu, P. I., is to have a new hospital of reenforced concrete and of modern construction at a cost of $40,000.

Railway Surgeons Meet.—At the annual meeting of the Chicago Northwestern Railroad Surgeons Association, January 6, the following officers were elected: President, Dr. David S. Fairchild, Clinton, Iowa; vice-president, Dr. G. E. W. Court, and secretary-treasurer, Dr. D. J. Andrews.

Typhus Fever.—Drs. John S. Anderson and Joseph Goldberger, of the staff of the hygienic laboratory of the U. S. P. H. and M.-H. Service, who have been in Mexico since November 1 studying typhus fever, have issued two preliminary reports, the first showing that Mexican typhus fever is not identical with Rocky Mountain spotted fever, and the second paper reports negative results from all cultures.

Hookworm Conference.—The first Hookworm Conference was held in Atlanta, Ga., January 18 and 19. The conference opened with about 500 in attendance and a representation from twelve states. Dr. Henry F. Harris, secretary of the Georgia State Board of Health, was elected temporary chairman and Mr. William Whitford of Chicago, secretary. The foremost speaker on the program was Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, Washington, D. C. A permanent organization was effected under the name "Southern Health Conference." A full report of the conference will appear in The Journal.

School Hygiene Meeting.—A joint meeting of the American School Hygiene Association, American Physical Education Association, Public School Physical Training Society and the Department of Superintendents will be held in Indianapolis, March 2-4, under the auspices of the Department of Superintendents of the National Educational Association. Dr. John H. Musser, Philadelphia, is president and Dr. Thomas A. Storey, New York City, secretary of the American School Hygiene Association; Dr. George L. J. Meylan, New York City, is president, and Dr. James H. McCurdy, secretary, of the American Physical Education Society, and Dr. C. Ward Crampton, New York City, president of the Public Schools Physical Training Society.

Coming Meetings.—The twelfth annual association of the Tri-State Medical Society of the Carolinas and Virginia will be held in Richmond, Va., February 15, 16 and 17, under the presidency of Dr. LeGrand Guerry, Columbia, S. C. Dr. J. Howell Way, Waynesville, N. C., is secretary of the association. The question of district membership in the American Medical Association is to come up at this meeting.——The International Medical Association of Mexico will hold its fifth annual meeting at Aguascalientes January 25, 26 and 27, under the presidency of Dr. S. H. Hodgson, Tampico. Of the 31 original articles on the provisional program 19 are by physicians from the United States, and 12 from physicians in Mexico.——The fourteenth annual meeting of the Sioux Valley Medical Association will be held in Sioux City, January 20 and 21, under the presidency of Dr. Matthe N. Voldeng, Cherokee, Iowa.

Medical Fraternities Elect.—The fourth annual meeting of the Chi Zeta Chi Medical Fraternity was held in Nashville, December 29-31. The following officers were elected: Dr. Hugh M. Lokey, Atlanta, Ga., Supreme Eminent Grand; Dr. Guy L. Bush, Supreme Deputy Grand; Dr. J. Calhoun McDougall, Atlanta, Supreme Bursar; Dr. Robert G. Stephens, Atlanta, Supreme Historian. Little Rock, Ark., was chosen as place of meeting for next year. The fraternity, which was organized less than seven years ago, now has nineteen chapters with a membership of 700.——The fourteenth annual meeting of the Phi Chi Medical Fraternity was held in Chicago, December 30 to January 1, about 100 delegates from twenty-five of the thirty-four chapters being present. Dr. L. F. Luckie was elected Grand Presiding Senior; Dr. Edward R. Schunk, Grand Presiding Junior, and Dr. Dunning S. Wilson, Louisville, Grand Secretary-Treasurer.

FOREIGN

First Aid in Mexico.—The governor of the Federal District of Mexico formally inaugurated the first-aid to the injured service in the City of Mexico, December 17. Dr. Leopoldo Castro, chief surgeon of the police ambulance department. is in charge of the service. Five physicians, three medical students, three nurses and a number of attendants are in attendance at the headquarters. Horse ambulances are at present used, but two automobile ambulances are being constructed for the use of the service.

Congress of Medicine and Hygiene.—As already announced, the International Congress of Medicine and Hygiene will be held May 25 in Buenos Aires, Argentine Republic. In order to facilitate the contribution of papers and exhibits from the United States, there has been appointed by the president of the congress, Dr. Eliseo Cantôn, and the minister of the Argentine Republic at Washington, a committee of propaganda of which Dr. Charles H. Frazier, 1724 Spruce street, Philadelphia, is chairman and Dr. Alfred R. Allen, 111 South Twenty-first street, Philadelphia, is secretary. The congress has been divided into nine sections, each section being represented in the United States by its chairman, as follows:

Section 1.—Biologic and Fundamental Matters, Dr. W. H. Howell, 232 W. Lanvale St., Baltimore.

Section 2.—Medicine and its Clinics, Dr. George Dock, 528 Walnut St., New Orleans.

Section 3.—Surgery and its Clinics, Dr. J. M. T. Finney, 1300 Eutaw Pl., Baltimore.

Section 4.—Public Hygiene, Dr. A. C. Abbott, 4229 Baltimore Ave., Philadelphia.

Section 5.—Pharmacy and Chemistry, Dr. D. L. Edsall, 1432 Pine St., Philadelphia.

Section 6.—Sanitary Technology, Dr. W. P. Mason, Troy, N. Y.

Section 7.—Veterinary Police, Dr. S. H. Gilliland, Marietta, Pa.

Section 8.—Dental Pathology, Dr. G. V. I. Brown, 349 Prospect Ave., Milwaukee, Wis.

Section 9.—Exhibition of Hygiene, Dr. A. C. Abbott, 4229 Baltimore Ave., Philadelphia.

It will not be necessary for one contributing a paper or exhibit to be present in person. Arrangements will be made to have contributions suitably presented in the absence of the author. Members of the following professions are eligible to present papers or exhibits: medicine, pharmacy, chemistry, dentistry, veterinary medicine, engineering and architecture. Papers may be sent direct to the chairman of the particular section, or to Dr. Allen, secretary.

LONDON LETTER

(From Our Regular Correspondent)

London, Jan. 8, 1910.

The Health of London

In the report of the Public Health Committee of the London County Council for 1908, which has only just been published, the marriage, birth and death rates are the lowest on record. For the past forty years the death rate has shown a decline. In 1905 the death rate was 15.1 per 1,000, the lowest then recorded; in 1906 it was the same; in 1907 it fell to 14.6, and in 1908 it reached its lowest point, 13.8. With regard to infant mortality, the number of deaths per 1,000 births is the lowest recorded. Moreover, the infant mortality for the last decennium is lower than in all save one of the thirteen other large English towns, and in 1908 was lower than in any of them. In 1908 the notification of births act passed in 1907 was adopted in all but eight of the London boroughs. The houses in which the births had taken place were visited by women sanitary inspectors or "health visitors." In some districts this work was supplemented by that of a staff supplied by voluntary local health societies. In some of the boroughs "consultative centers" have been instituted, to which mothers bring babies who need special attention. Advice is given as to treatment and the progress of the child is watched. In 1908 the death rate from epidemic disease was also the lowest on record. No death occurred from smallpox, and the deaths from measles, whooping-cough, diphtheria, typhoid fever, diarrhea and phthisis were below the average for the last ten years, but the deaths from scarlet fever and influenza were above the average.

The Increase of Cancer

A gloomy feature of the registrar general's report on the vital statistics of England and Wales for 1908, which has only just been published, is the alarming increase in the death rate from cancer. From 0.55 per 1,000 of the population in the quinquennial period 1881-85, the rate has continually risen until it attained 0.92 in 1908. An international table of twenty countries is given, on which the following comment is made: This country occupies an unenviable position with respect to the mortality from cancer, the rate for England and Wales being exceeded in only two European countries—Switzerland and the Netherlands. Scotland occupies a slightly better position (fourth), and Ireland, notwithstanding its abnormal age constitution, a much better position (seventh, with a rate of 0.76). In all the countries from which returns have been received the mortality from cancer has shown a general tendency to increase in recent years. There is one satisfactory feature: there has been a cessation of the increase in women under 55.

The Medical Profession in 1910

The total number of physicians on the medical directory for 1910 is 40,558—an increase of 566 on the previous year. This number includes only those who have qualified in this country and not those who have done so at the colonial medical schools of Australia and Canada. In 1901 the number on the directory was 36,354, and the increase on the previous year was 703. Since that year the annual increase has fallen off, reaching a minimum of 289 last year, but, as the figures given above show, the annual increase again tends to rise.

The Administration of Anesthetics by Dentists

As shown in previous letters, the question of death under anesthetics has attracted much public attention, and legislation restricting the administration of anesthetics to qualified medical practitioners and ensuring better training in administration is foreshadowed. A controversy now exists as to whether dentists should be permitted, as they are at present, to administer nitrous oxid for dental operations. It is argued that as anesthetics are a necessary part of the dental curriculum, dentists are perfectly competent to administer nitrous oxid for dental operations, and that, moreover, they have much more experience and therefore greater skill in this administration than the average physician. A dental writer discussing the question in Guy's Hospital *Gazette*, says that the persons most desirable for the administration of an anesthetic for dental purposes are in the following order: First, the most desirable is the professional anesthetist. Second comes the operating surgeon, provided he is in the habit of administering anesthetics. He is essentially a practical man, his work is manipulative, and he is particularly adapted to tackle emergencies, such as those requiring laryngotomy or tracheotomy, which he can do even better than the professional anesthetist. Third, comes the dentist, provided he is in the habit of administering anesthetics. His work also is manipulative. He is used to manipulating the patient's mouth and can manage the gag well. Last comes the ordinary physician. Many of them do not known how to administer gas. They cause the patient to become badly cyanosed or too much clonic spasm, and they spoil the dental operation at "the change over," not being able to manage the gag.

The Diminishing Birth Rate: The Survival of the Unfit

Speaking at a diocesan conference the Bishop of Ripon dealt with the question of the diminishing birth rate. It was, he said, the stronger, the sturdier, the better men who refused to have families. The dwindling population of England meant that we would become less and less a power of the first rank in the world. Those who were increasing the more rapidly were not the most desirable citizens. The unfit and the diseased were increasing rapidly, while the best classes were not increasing. If a man from a physical or moral deficiency was not likely to be a useful father of a family it was better that he should not be so. Most physicians agreed that the feeding, clothing and medical treatment of children although of great advantage to the individual, only perpetuated the evil and some went so far as to maintain that as the state is taking over the responsibility for these weaklings antenuptial medical examination would have to be seriously considered. For if it was the duty of the state to look after the infant after its birth it should insist that its conception should take place under favorable circumstances.

The Recognition of a Special Class of Consultants

The central ethical committee of the British Medical Association has issued an important report on the recognition of a special class of consultants. The committee considers that the extraordinary development of specialism in the last 25 years ought, if properly organized, be of great advantage to the community. But without proper guidance a patient is able rarely to select the form of specialism best suited to his requirements. His difficulties are great, since medical specialism is determined not only by particular study of different parts of the body (such as the eye, ear, etc.), but of different therapeutic measures (such as surgery, pharmacology, electricity, etc.) of different therapeutic pathological processes (bacteriology and chemical pathology) and of different methods of diagnosis (hematology, radiography, etc.). It is therefore a very perplexing question for the patient what sort of specialist can best assist him. These questions would be much more easily answered if specialists would act as pure consultants and treat patients only in cooperation with their ordinary medical attendants. On the one hand, the ordinary attendant would much more freely confer in a difficult case with colleagues who would under no circumstances become his competitors. Moreover the patient would have the advantage that his medical attendant is a much better judge than he in the selection of a specialist. Such pure specialism is rare and seems to be growing only very slowly. Specialists of all sorts from the most eminent leaders of the profession downwards are in nearly all cases accessible to the direct call of the public. By concerted action of the British Medical Association it is hoped that the desired change could be brought about, which would be financially beneficial to both branches of the profession. For any loss of work by the specialist from abandoning non-consultative work would, it is contended, be counterbalanced by an increase in the number of consultations and, if necessary, by an increased fee. On the other hand, the general practitioner would be protected against the loss, temporary or permanent, of his most interesting cases. The relations which should exist between a class of pure consultants and their professional brethren could be defined by "regulations" drawn up by the association. The scheme has certainly much to be said in its favor but its difficulties do not seem to have received adequate consideration from the committee. Most specialists would object to the proposal that they should be forbidden to receive patients who wished to consult them unless the approval of some general practitioner had been obtained, and, on the other hand, the public would also object to such restriction. Further an increased cost of medical services would not be viewed by the public with the same satisfaction as the committee. No doubt by regulations fees could be standardized and made compulsory but the economic law that an increased cost diminishes the demand cannot be questioned. All but the wealthy would try to avoid the increased expense by usual methods—irregular practitioners, nostrums, etc.

Success of the Campaign Against Sleeping Sickness

The energetic campaign against the scourge of Uganda has borne fruit. Segregation camps were established for those suffering from sleeping sickness in order to stop the source of infection of the tsetse fly. But the clearing of the population from an area around the lake in which the fly was found to flourish proved more effective. Practically all the fly-infested places have been cleared and the population has been settled in healthy places. At the same time in many places the vegetation in which the fly thrives has been removed and the insect has disappeared. The result of these measures, which were carried out at a cost of $90,000, is that while between 1898 and 1906 more than 200,000 natives died from sleeping sickness in two of the Uganda kingdoms, only 5,000 died in 1907, 3,662 in 1908, and 459 in the first six months of 1909. On the other hand, the atoxyl treatment of Koch has proved a failure. The task of eradicating the disease, however, is far from complete. There are many thousands in the segregation camps who are neither dying nor being cured, and have to be maintained at great expense in strict isolation. Then there is the population, removed to its temporary abodes, which cannot yet be allowed to return to their lands, owing to the uncertainty as to how long the flies are capable of conveying infection. Nevertheless, the work done reflects great credit on the British colonial administration.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Dec. 31, 1909.

Laboratory for the Study of Radioactivity

The council of the University of Paris and the Pasteur Institute have agreed to construct, at the joint expense of the two institutions, a laboratory for the study of the phenomena of radioactivity and their therapeutic applications. The projected laboratory will comprise two parts: one for scientific researches under the direction of Mme. Curie, the other for medical applications under the direction of the Pasteur Institute. The latter will contribute towards the expenses of construction and equipment of the institution the amount of $80,000 (400,000 francs) from the Osiris legacy.

Society of Pediatrics

The first annual meeting of the French Society of Pediatrics, which is now being organized under the auspices of the Paris Society of Pediatrics, is to be held July 29-30, 1910, at Paris.

May a Physician Give Consultations in a City Where He Does Not Reside?

Several medical societies (*syndicats*) have recently given consideration to the question stated above. The *Syndicat de Pont-Audemer* (Eure) has decided to permit its members to resume professional relations with a certain colleague only on condition that the latter discontinue the office that he has opened in a locality where he does not reside. The *Syndicat départemental de la Mayenne* has rendered the decision that every physician has the right to practice and to give consultations on stated days in any locality whatsoever. This creates no difficulty when the locality to which he goes is within the ordinary radius of his practice or nearer to his own residence than to that of any other physician, but in case the locality where he thus practices is within the radius of the practice of another colleague, the *syndicat* permits a physician to give consultations there on a stated day, provided that he does not take fees lower than those of the other practitioners.

Death of Professor Lortet

Dr. Lortet, former professor of medical natural history at the Lyons medical school, has died, aged 74. He was named dean of the school in 1876, and performed the duties of that position for thirty years. He was a correspondent of the Academy of Sciences and national correspondent of the Academy of Medicine. A few years ago Professor Lortet exhumed some skulls of monkeys which bore erosions in which he believed that he recognized signs of syphilis, and the assertion aroused lively controversy in the scientific world.

Prizes of the Paris Medical School

The Paris medical school has awarded the Barbier prize of $400 (2,000 francs) to Dr. Pachon of Paris for his work on the mensuration of arterial pressure in man, and the Jeunesse prize of $300 (1,500 francs) to Dr. Lassablière of Paris for his work on meat powders and on energy requirements in infancy.

Resident Fellowships at Foreign Universities

An anonymous donor has given to the University of Paris an annual income of $6,000 (30,000 francs) to found resident fellowships at foreign universities in favor of young professors, or future professors of higher education. The council of the university has decided that the amount of each fellowship shall be $600 (3,000 francs), and that there shall be ten of them. They will be awarded to doctors in medicine and in law, and to pharmacists who intend to give instruction.

Exposition of Social Hygiene

The exposition of social hygiene organized by the committee of patronage of low-priced dwellings, opened December 20, at the Grand Palais. The principal purpose of this exposition is a competition between French and foreign architects, engineers, builders, contractors, and manufacturers, which will permit the selection of the most hygienic and economical methods and systems meeting the requirements of low-priced dwellings. The competition is divided into five classes: (1) economical and hygienic materials of construction; (2) heat; (3) lighting; (4) low-priced furniture; and (5) miscellaneous. A house completely built and furnished with all modern improvements demonstrates to the visitors the application of the various products shown. An economical laundry works in view of the public. To make the benefits of the improvements recommended by the committee still further appreciated a series of lectures will be held by the most influential members of the French Society for Low-Priced Dwellings, the League Against Alcohol, the associations for the protection of infancy, etc. In order to encourage the widest use of the hygienic inventions, the admission to the exposition is free.

BERLIN LETTER

(From Our Regular Correspondent)

Berlin, Dec. 28, 1910.

The Puro Meat Juice Suit

It was established chiefly by Gruber of Munich more than a year ago that the food "puro" widely advertised as pure meat juice was nothing more than meat extract mixed with white of egg. On the basis of this publication the state's attorney instituted a suit for fraud against the manufacturer of puro, Dr. Scholl, and the trial took place a few days ago. Dr. Scholl at the trial claimed that it was his purpose to drive out the high-priced American meat extracts by cheaper preparations of equal value. As his attempts to prepare a permanent meat juice from raw meat failed on account of the high price of meat and on account of the disagreeable taste, he resorted to a combination of meat extract with white of egg, since the latter is physiologically equivalent to the albumin of meat. That the preparation was advantageous both on account of its taste and of its action, was shown not only by the favorable opinion of physicians but also by the large sale of the preparation which amounted to 495,000 bottles per year before the exposure by Professor Gruber. He endeavored to show that the profits were not exorbitant. A number of experts expressed the opinion that fraud has been perpetrated on the public by the statement made on the labels that the preparation was a meat juice obtained by high pressure from lean meat and that the contents of a flask contained the concentrated juice of five pounds of raw beefsteak. Other experts did not agree with this opinion as the nutritive value of the preparation had not been materially affected. The representatives of the accused brought out the fact that Professor Gruber was in the employ of the Liebig Co. The court sentenced Dr. Scholl to a month's imprisonment and a fine of $750 (3,000 marks). The court decided the case on the evidence of fraud but gave no opinion as to the value of the preparation. This decision has still further reduced the sales of puro.

The whole transaction constitutes a satisfactory warning for the manufacturers of food preparations. What its effects will be remain to be seen. Many another preparation, especially among the so-called meat juices, would be subject to similar criticism if its composition was compared with the advertising circulars and its nutritive value estimated from the standpoint of price. [Editor's Note: Those interested in American meat juices will find a report in The Journal, Nov. 20, 1909, p. 1754.]

Legal Regulations of Labor Hygiene

A new trade ordinance went into effect January 1 by which the hours of labor for men and particularly for women are regulated under certain circumstances in a better way than heretofore. An unbroken rest period of at least twelve hours must be allowed to youths and women. The permissible period of labor for women is ten hours and on the day before Sunday and the holidays is limited to eight hours. Women must not be employed after eight o'clock in the evening (formerly half past eight) nor before six o'clock in the morning (formerly half past five) and on Saturday and days before holidays the employment of women must cease at 5 p. m. The provision that women who keep house shall be allowed on request a half hour before the noon recess has been extended to girls under sixteen years of age. The provisions for the safeguarding of puerperal patients have been extended so that women before and after delivery must not be employed for a total of eight weeks and may not be admitted to work after delivery until it is evident that six weeks have passed since labor. The carrying on of work outside of the factory on Sundays and holidays is forbidden. The permissible overwork for adult women in case of extraordinary pressure of work has been limited in three ways: It may not exceed twelve hours a day and must permit an unbroken rest period of ten hours; it may not extend later than nine o'clock in the evening and it must occur not more than fifty days in the year. In case of accidents the longest period of labor to be permitted for adult women is limited to twelve hours. Before the authorities can permit exceptions to the legal provisions regarding rest periods an opportunity must be given to the laborer to secure an official opinion from the labor committee with reference to the proposed exception.

Sanitary Statistics of the Army

The chief medical officer of the Prussian army has published a pamphlet elaborating the address which he delivered in July, 1909, on the "Sanitary Statistics of the People and Army." Schjerning reaches the conclusion that the military strength of Germany has not been remarkably reduced but that it requires every exertion to keep it at its present level or to improve it. The military strength is dependent on the birth rate and infant mortality. The latter is important because with a high rate of infant mortality, those who survive are often physically below grade. The occupation of those liable to military duty has a relatively smaller influence on their physical constitution and fitness for military service than their extraction and parentage. As a rule the rural population furnishes a greater proportion of suitable soldiers than the city, but the view frequently advanced that agriculture produces a better grade of men than industry is not tenable.

The number dismissed from the German army as unfit for service and invalided (pensioned) has indeed increased, but this does not justify the assumption that the supply is becoming poorer, for the increase in dismissals is explained by a number of circumstances, for instance the introduction of the two year service, more strict requirements in the service, and greater leniency in granting pensions. General weakness constitutes one of the principal reasons for unfitness being found in about one-third of the unfit. In estimating the influence of the school on military fitness v. Schjerning agrees with the conclusions of Schwiening which I have given in a previous letter (THE JOURNAL, Aug. 14, 1909, page 569). The entire amount of sickness in the Prussian army in the last thirty-five years has diminished about 35.2 per cent. Altogether contagious diseases (with the exception of tuberculosis, influenza, parotitis epidemica and tetanus) have diminished from 62.7 per cent. to 3.9 per cent. For decades smallpox has practically disappeared from the army. Nerve and ear diseases form an exception to this fortunate reduction, showing instead an increase. Part of this increase is due to better diagnosis by which the conditions are discovered earlier. As compared with other armies the record of the German army in regard to the morbidity from various infections is very favorable; only scarlet fever occurs more frequently in the German than in other armies with the single exception of that of France. Venereal diseases have fallen off in almost all armies and especially in the Prussian and Bavarian.

The mortality of the army has been reduced in the last thirty-five years about 73 per cent.; in the Prussian it amounts to 2 per 10,000. The suicide rate has been considerably diminished of late years, although it is still greater than in almost all other armies and is only exceeded by that of the Austria-Hungarian. Of every 10,000 men there died by suicide from 1900 to 1904 in the Netherland army, 1.2; in the Russian, 1.3; in the Belgium, 1.5; in the French, 1.8; in the Bavarian, 3.1; in the Italian, 3.2; in the Prussian, 4.2; in the Austria-Hungarian, 9.9. The death rate from suicide in the Prussian corresponds to the rate among men of the same age in the urban civil population.

In discussing the influence on the people of the compulsory military service Schjerning emphasizes its educative influence in sanitary and intellectual matters. The mortality of the male population is less during the third decade of life on account of the influence of army life. An immediate influence is also discernible through the assistance of the sanitary corps in epidemics, the discovery and treatment of physical defects and of unsanitary conditions in particular localities and in certain occupations. The period of service has also a demonstrably favorable influence on the intellectual and moral development of the soldiers by education to greater intellectual activity, clearness and decision in thought and action.

Pharmacology

THE AMERICAN DRUGGISTS SYNDICATE

Its Half-Million Advertising Campaign

The cooperative "patent medicine" concern, known as the American Druggists Syndicate—the A. D. S.—to which we called attention two weeks ago,[1] is consistently fulfilling the destiny of the nostrum exploiter, as we then intimated it would. Until within the past few weeks, the A. D. S. has confined its advertising practically to counter pamphlets, circulars, etc. Now, however, an advertising campaign in which it is said half a million dollars will be expended, has been inaugurated and the pharmacists belonging to this organization are frankly before the public not merely as dispensers of nostrums but also as manufacturers.

Printer's Ink, in describing the American Druggists Syndicate from the advertiser's standpoint and referring to its "patent medicine" department, says:

> "There is a remedy for about every physical trouble flesh is heir to and for every phase of every trouble."

Of one of the specialties put out by the A. D. S. and the part this nostrum is expected to play in the "patent medicine" world:

> "There is Pelvitone, designed to fight Lydia Pinkham's."

How the various members of this organization will contribute to the half-million fund for advertising is explained in *Printer's Ink* as follows:

> "When any local druggist signs a contract for a year's membership, he binds himself to spend at least one dollar a week which shall go for advertising. Often he pays as much as two dollars a week for the fifty-two weeks. That means that in towns having 100 members, $200 will be available weekly for pushing A. D. S. goods. Where possible, the names of druggists in each town are appended to advertising copy."

WHAT IS THE REAL REASON FOR THIS ORGANIZATION?

The advertising campaign is on and in the large metropolitan dailies full-page advertisements appear whose make-up out-peruna's Peruna. Addressed in scare-head type "To the Mayor and Citizens of Baltimore"—or some other city as the case may be—an advertisement tells the public why the American Druggists Syndicate was organized. The reasons given to the public are not altogether in consonance with those more frankly admitted in a small booklet sent out by the organization to the druggists whose membership is solicited. To make use of the "deadly parallel":

WHY THE A. D. S. WAS ORGANIZED

THE REASON GIVEN THE PUBLIC	THE REASON GIVEN THE DRUGGISTS
". . . twelve thousand prominent retail druggists . . . have successfully formed an organization under the title 'American Druggists Syndicate,' one of the purposes of which is to aid the local, state and national governments in their campaign for the protection of the public against impure and habit-forming drugs and medicines." "This organization is the result of the startling revelations and complete exposè recently made by the leading magazines of the country covering the methods of some habit-forming nostrum manufacturers, who were willing to sacrifice life, honor and health for the gratification of their own selfish greed."	"The patent medicine business is immensely profitable—but—Where do you come in? What percentage of profit are your sales of "patents" netting you? How would you like to change places? The retail druggists of this country are losing-thousands of dollars in profits which should belong to them. Why don't *you* keep *your* share? Could you, alone and unaided, and with limited capital put a "ready-made" medicine of your own on the market, in opposition to any one of the big manufacturers, and make it a national success? No. Could you and five other retail druggists do so? No. Could you and five thousand like you? Yes. Now you have it. "That is one of the many things the American Druggists Syndicate was organized for."

If we accept the heart-to-heart explanation given to prospective members, rather than the spectacular play to the gallery indulged in when addressed to the public, it seems on their own admission that the A. D. S. was organized to allow its members to participate more fully in the unholy profits of the "Great American Fraud."

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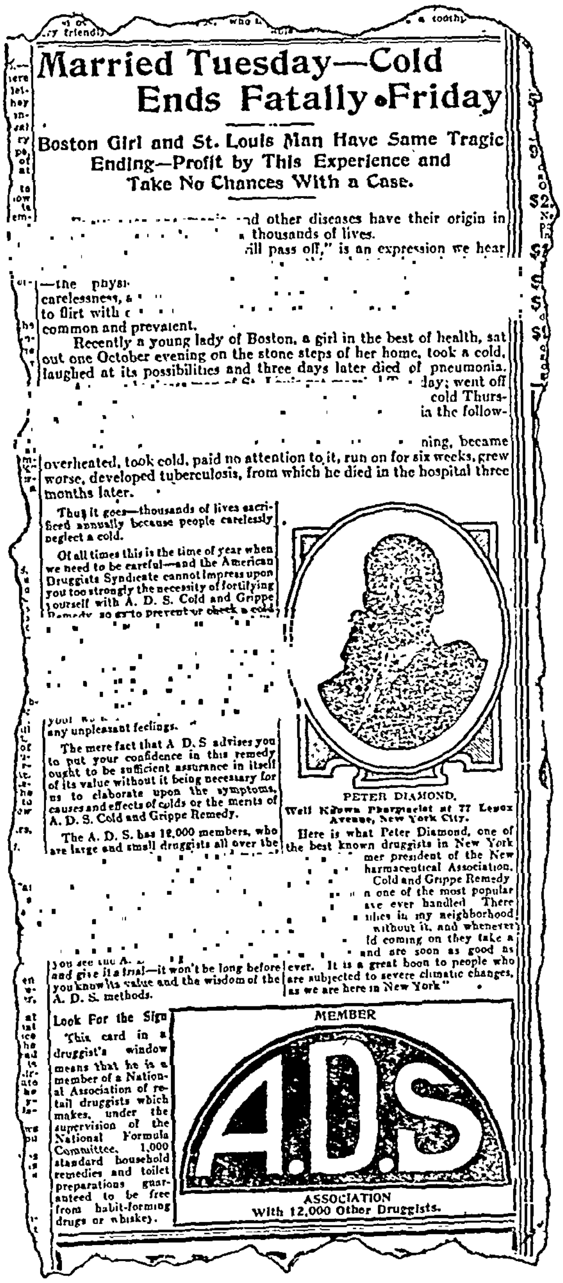
1. THE JOURNAL A. M. A., Jan. 8, 1910, p. 145; see also Jan. 15, p. 221.

BORROWED DIGNITY

It is rather surprising to find prominently pictured in the most approved "patent-medicine" advertisement style a member of the New York State Board of Pharmacy and the dean of the Brooklyn College of Pharmacy—Dr. W. C. Anderson—as a director and second vice-president of the A. D. S. and the chairman of its so-called formula committee. That the A. D. S. possesses a good advertising asset in the person of a member of the State Board of Pharmacy and the dean of a college of pharmacy cannot be doubted; from a commercial standpoint it is to be congratulated. Those interested in the dignity of the profession of pharmacy as a profession, however, may well doubt whether a state board of pharmacy or a college of pharmacy is to be felicitated in being thus given publicity by such an organization as the American Druggists Syndicate.



Married Tuesday—Cold Ends Fatally Friday

Boston Girl and St. Louis Man Have Same Tragic Ending—Profit by This Experience and Take No Chances With a Case.

nd other diseases have their origin in
thousands of lives.
ill pass off," is an expression we hear
—the physi
carelessness, a
to flirt with c
common and prevalent.

Recently a young lady of Boston, a girl in the best of health, sat out one October evening on the stone steps of her home, took a cold, laughed at its possibilities and three days later died of pneumonia.

day; went off
cold Thurs-
in the follow-
ning, became overheated, took cold, paid no attention to it, run on for six weeks, grew worse, developed tuberculosis, from which he died in the hospital three months later.

Thus it goes—thousands of lives sacrificed annually because people carelessly neglect a cold.

Of all times this is the time of year when we need to be careful—and the American Druggists Syndicate cannot impress upon you too strongly the necessity of fortifying yourself with A. D. S. Cold and Grippe Remedy so as to prevent or check a cold

any unpleasant feelings.

The mere fact that A. D. S. advises you to put your confidence in this remedy ought to be sufficient assurance in itself of its value without it being necessary for us to elaborate upon the symptoms, causes and effects of colds or the merits of A. D. S. Cold and Grippe Remedy.

The A. D. S. has 12,000 members, who are large and small druggists all over the

and give it a trial—it won't be long before you know its value and the wisdom of the A. D. S. methods.

PETER DIAMOND.
Well Known Pharmacist at 77 Lenox Avenue, New York City.

Here is what Peter Diamond, one of the best known druggists in New York
mer president of the New
harmaceutical Association.
Cold and Grippe Remedy
n one of the most popular
ave ever handled There
ilies in my neighborhood
without it, and whenever
ld coming on they take a
and are soon as good as ever. It is a great boon to people who are subjected to severe climatic changes, as we are here in New York."

Look For the Sign

This card in a druggist's window means that he is a member of a National Association of retail druggists which makes, under the supervision of the National Formula Committee, 1,000 standard household remedies and toilet preparations guaranteed to be free from habit-forming drugs or whiskey.

Referring again to the "formula committee" of which Dr. Anderson is the chairman, this it should be remembered is the body which is alleged to pass on the value of the "thousands of prescriptions written by the most successful physicians in every state in the Union" and to "select the premium prescription and offer it to the public in a ready-made package." Do the members of the American Druggists Syndicate actually appropriate physicians' prescriptions and send them in to the "formula committee?" If they do, they are grossly betraying the trust which physicians repose in them and in addition are doing an illegal act; if they do not then they are humbugging the public.

ARE DRUGGISTS SOPHISTICATORS?

In another advertisement the A. D. S. attempts, by inference, to question the purity of the drugs dispensed by those druggists not numbered among its members. Reference is made to a sensational article which appeared in the yellow press having for its theme the charge that "the medicines dispensed by druggists are still largely adulterated or of inferior quality." The question is then propounded by the A. D. S.: "How is one to know when his doctor gives him a prescription that the druggist has filled it properly?" The answer is, of course, patronize a member of the American Druggists Syndicate! To attempt thus—even if only inferentially—to instill in the mind of the public a distrust for all druggists who have not seen fit to ally themselves with this cooperative "patent-medicine" concern is an uncalled-for insult to the retail druggists of the country.

But as an example of advertising casuistry the following is unique. It appears in the advertisement just referred to:

> "Headache cures of all kinds are very numerous. With the 'guarantee' in the label they look very good to the sufferer. As a matter of fact very few of them are fit to be taken containing as they do *caffein, antipyrin and other harmful drugs.*"—[Italics ours.—ED.]
>
> "The Government has seized many of these 'sure cures' but the manufacture and sale of them goes on merrily and it is safe to say that as a result more drug habits are contracted than headaches cured."

The full irony of this warning against "caffein, antipyrin and other harmful drugs" becomes manifest when it is appreciated that each of the "A. D. S. Headache Wafers" contains *caffein* and 4 grains of *acetanilid.*

EXTRAVAGANT STATEMENTS

What excuse does the American Druggists Syndicate offer for marketing "patent medicines?"

> "All remedies compounded by the syndicate are truthfully represented and advertised."
>
> "No alluring bait is held out to the sick—no extravagant statements or promises made."

How do the claims made for these nostrums measure up to the standard thus set? We give a few of the statements made regarding them and let the medical profession decide whether or not the bait is alluring or the statements extravagant.

PELVITONE: "For frail women who are too modest or too careless to see a physician." "Is the prescription used by the most eminent and successful physicians." "Try one bottle and you will recommend it to your afflicted lady friends."

BRAIN AND NERVE TONIC: "A scientific nerve food." "It never fails."

HEADACHE WAFERS: "This prescription cures all headaches and relieves pain."

COLD AND GRIPPE TABLETS: "Will cure your bad cold or grippe very quickly."

RHEUMATIC REMEDY: "Counteracts effects of uric acid in the blood."

KIDNEY REMEDY: "Will restore healthy action to the kidneys."

EFFERVESCENT BROMO HEADACHE SALTS: "Always effective."

BLOOD MIXTURE: "Purifies the blood."

EX-Z-MO: "It will cure eczema."

BEEF, WINE AND IRON: "It makes good, rich blood."

CELERY COMPOUND: "Tones up the nerves and strengthens the brain."

As to the method of presenting the "alluring bait" we reproduce an advertisement — greatly reduced—which expounds the virtues of the "A. D. S. Cold and Grippe Remedy." The superiority—in the matter of conservative and truthful representation—of this advertisement, over those put out by Lydia Pinkham or Duffy's Malt Whiskey concerns may or may not be apparent.

THE KERNEL OF OUR CRITICISM

Once again let it be made plain that for cooperation *per se* there can be nothing but praise. It has always been believed that decent pharmacists have handled "patent medicines" not because they had any faith in them, but because economic conditions made that course practically imperative. Most physicians have thought that the attitude of the druggist toward nostrums has been that of ill-disguised contempt. What is to be thought now that the "patent-medicine" evil has received the stamp of official approval from thousands of druggists simply because these same druggists are to profit therefrom? Are the retail pharmacists of the country about to sell their heritage of professional decency for a mess of pottage—a mess, too, that smells to high heaven?

UNICORN ROOT, WILD YAM AND WILD INDIGO

Report of the Council on Pharmacy and Chemistry

The Council has voted that recognition be refused to the following: Unicorn Root (*Aletris farinosa*), Wild Yam (*Dioscorea villosa*), and Wild Indigo (*Baptisia tinctoria*) and has authorized the publication of the following statements.

W. A. PUCKNER, Secretary.

UNICORN ROOT—ALETRIS FARINOSA

Unicorn Root (*Aletris farinosa*) contains a bitter principle and starch. Remarkable powers as a uterine tonic have been ascribed to it but have not been realized by reliable observers, the drug being practically valueless in these conditions. It enters into the composition of a number of nostrums. As a bitter it is superfluous and it should not be included among non-official drugs.

WILD YAM—DIOSCOREA VILLOSA

Wild Yam (*Dioscorea villosa*) has been little used in medicine. It contains a saponin and an acrid resin, and is said to possess expectorant, diaphoretic and—in large doses—emetic properties. It has been recommended as a remedy in biliary colic and in muscular rheumatism. Its value in such conditions has not been verified to an extent entitling it to consideration as a useful remedy.

WILD INDIGO—BAPTISIA TINCTORIA

Wild Indigo (*Baptisia tinctoria*) has been in use—chiefly by the eclectics—for about three-quarters of a century, but there is no satisfactory evidence that it has any therapeutic value. The following text-books on pharmacology do not even mention wild indigo: Cushny, Brunton, Dixon, Binz, Sollmann. It is not official in the United States or other leading pharmacopeias.

A preparation of wild indigo is advertised with extravagant claims for its therapeutic action, but these claims are not supported by any substantial evidence. Other virtues ascribed to wild indigo are its properties as a cardiac and hepatic stimulant and its value in sepsis, particularly in typhoid fever. It actually has emetic and cathartic properties, but even these are inferior to those possessed by many other drugs.

It is very evident that a drug possessing the extraordinary merits that have been claimed for wild indigo would not have remained unnoticed by the leading authorities on pharmacology and therapeutics, especially after its prolonged use in medicine. Owing, therefore, to the lack of substantial evidence of its usefulness, baptisia is not considered as of sufficient importance to warrant its inclusion in the list of non-official drugs. It is probably entirely superfluous.

Correspondence

Revision of the Pharmacopeia

To the Editor:—The principles to govern the revision of ~~the next~~ Pharmacopeia suggested by Dr. Osborne in The Journal, January 1, are the best of the many that I have seen. I heartily approve of them but would like to add two more.

First: That no compounds be included in the Pharmacopeia. Those which have been will be permanently standardized by Dr. Osborne's second rule or principle which makes the standards of former editions of the Pharmacopeia permanent standards for drugs which are dropped from the new edition. Possibly it will be well to describe a few menstrua, pill masses, etc., and also well to indicate how each drug can be administered most agreeably.

Second: Standard abbreviations for all drugs should be given in an appendix. Almost every prescription is written in abbreviations and they should be standardized.

I hope the time will come when drugs in the Pharmacopeia will be defined by their physiologic action as well as by their physical and chemic attributes, because the possession of physiologic action is the only thing that makes them useful drugs. Therefore this is the best definition of them.

The Committee on Revision is entirely capable of compiling all that is authoritatively known on this subject. I appreciate the fact that some drugs in the Pharmacopeia have not been sufficiently studied to have their physiologic action known. But this lack of knowledge would be emphasized when stated in the Pharmacopeia and would lead to their systematic study or rejection.

If knowledge of this kind were added to the Pharmacopeia it would make it more serviceable to both physicians and pharmacists.

N. S. Davis, Chicago.

Alcohol Dangerous in Emergency Cases

To the Editor:—An incident which occurred in a prominent city in New York state has become the subject of some controversy, and has been referred to me for an opinion. The facts being of more than local interest, a reply through The Journal seems most practical.

A man of some prominence fainted in the street, and was taken to the office of a physician, who gave him brandy in large quantities to keep up the action of the heart. The patient died in the course of a few hours, the post-mortem revealing hemorrhage, and rupture of several cerebral arteries. It was contended by his friends that the brandy hastened his death by increasing the rupture of the arteries and perhaps flooding the brain with more blood than would have naturally passed through the fractures.

A case was cited, for comparison, of a middle-aged man who fainted and was found unconscious on the street, who was treated with water poured on the back of the neck, kept in a reclining position with hot bottles to his feet and no spirits given. He recovered with partial paralysis. The assertion was made that, had any form of alcohol been given, the increased action of the heart would have sent a blood-stream through the circulation with greater velocity, widening the ruptured artery and making the case fatal. In such cases a small break at first would be greatly increased by a sudden pressure of the blood, and nothing would be more unwise than to increase the heart's beats and the blood-pressure at this time.

Men found in the street in a state of coma, in whom the heart-beat is reduced and is hardly discernible are often given alcohol for the purpose of starting up the heart, and the supposition is that this is curative and without it the depression would naturally go on to death. In reality, in many cases of coma the action of spirits starts up the heart, and very soon afterward increased depression sets in and no further use of spirits has any influence other than a transient rise and increased depression, ending in death. It never occurs to the physician that rousing up the heart and increasing the flow of blood is increasing the danger and fatality of the case. It is also noted that fractures and extensive lacerations of the bones and muscles always heal more slowly and are more complicated when alcohol is given at the start to prevent shocks and to overcome heart depression. It is evident that in these cases alcohol drives the blood through the broken vessels into the tissue and greatly increases the inflammatory conditions which follow. A person found in the street unconscious, with a face intensely red, showing congestion, and vasomoter palsy, should never be given alcohol, for the reason that it increases the palsy and vasomotor paralysis, and is very likely to be followed by rupture of the cerebral arteries.

In apoplectic fits and head injuries the same danger exists. The increased action of the heart is always at the expense of the vitality, and it is a grave question whether anesthesia is the proper thing to produce in such cases. It is also noted that in bruises and contusions among drinking men, the congestion is greater, the inflammation is intense, and recovery slower.

In amputations or ligations of arteries alcohol increases hemorrhage and is an exceedingly dangerous agent.

In emergency cases in which the heart is depressed the patients should never be given alcohol because of the great danger and uncertainty of its physiologic action. Raising the blood-current and forcing it with greater velocity is followed by depression and unknown conditions which are hazardous to the last degree.

It may be asserted without question, in view of the wealth of clinical facts which has placed the subject beyond opinions or theories, that alcohol is one of the most dangerous of all drugs in emergency cases, and this is sustained by the fact that so many other measures and remedies are available that have no such physiologic action as alcohol.

It is not a matter of controversy, but one of facts which can be tested, and the physician should put aside all prejudices and theories of the past and examine the matter in the light of the present knowledge, and use only those means which are known to be safe and practical.

T. D. Crothers, M.D., Hartford, Conn.

Nastin Treatment of Leprosy—A Correction

To the Editor:—My attention has been directed to page 1124 of THE JOURNAL for Oct. 2, 1909, where my contribution to the Leprosy Conference is noted. I am represented as "greatly opposed to the use of nastin." The matter, I am aware, is not of much general interest, but at the same time I feel obliged to point out that these words misrepresent me altogether; all that I did was to report, with full clinical details, trial of nastin in four cases. The clinical details were very fully given and showed that no therapeutic effects, nor indeed effects of any kind, were produced; to such a statement I confined my remarks.

J. ASHBURTON THOMPSON, Sidney, N. S. W.

Miscellany

CLIPPINGS FROM LAY EXCHANGES

WILLING HANDS MAKE LIGHT WORK

Dr. ——— is dead. Just as he was crossing the rails the southbound Cape May express . . . came rushing down the track and caught the doctor, with his horse, wagon and dog companion, and threw them high in the air, death resulting instantaneously. All that remained of them was a mass of mangled humanity, cut in twain, a ground-up horse, dead dog and a demolished vehicle. Willing hands gathered up the fragments and Coroner ——— was notified.—Cape May (N. J.) *Gazette*, Sept. 18, 1909.

LOST HEART BEAT, MAY DIE

Last Sunday Mr. ——— was taken violently ill, the first symptoms being shown when blood began to spurt from his nose. A physician was hastily summoned and on examination stated that Mr. ——— was suffering from hemorrhage, the result of his heart having lost one beat.—Waukegan (Ill.) *Gazette*, June 4, 1909.

TOO BAD—HORRIBLE EXAMPLE

The following heading is quoted from the Stockton (Cal.) *Evening Record*, Nov. 13, 1909:

ALCOHOLIC EPILEPSY

Dr. A. W. H——— Shows Effects of Liquor

His Paper Before Physicians' Convention Gives Drinkers Strong Object Lesson

THE STATE OF TENDER YEARS

Matrimony Hospital on Grill.—. . . Steps are being taken . . . to investigate a maternity hospital at Beloit in which several wards of the state of tender years have been cared for. —Madison (Wis.) *Democrat*, Nov. 9, 1909.

POSTERIOR TRACHEOTOMY—PLEASE PUBLISH THE TECHNIC

. . . Resorting to tracheotomy, they made a small incision in the back of the lad's neck, and from the outside, and the burr was then removed, although with much difficulty, as it was firmly lodged and the throat was badly inflamed and swollen.—Eldora (Iowa) dispatch to Omaha *World-Herald*, Oct. 24, 1909.

A NEW NEUROSIS

A new disease has sprung up in San Francisco certainly unknown before to the medical profession. Yesterday an old German lady came to my office and in a pitiful tone complained that she was suffering terribly since the earthquake from nervous castration.—Personal communication from San Francisco physician.

INTESTINAL SYSTEM REMOVED AND RESET

One of the most remarkable surgical operations . . . was successfully carried through . . . by Dr. ———, chief surgeon . . . Almost the entire intestinal system was removed from the abdomen of a 12-year-old boy, cleansed of foreign matter, numerous lacerations stitched, and the intestines replaced and reset.—*Philadelphia Record.*

The Public Service

Medical Department of the Army

Changes for the week ending Jan. 15, 1910:

Reddy, John J., 1st lieut. M. R. C., Jan. 7 ordered to active service and assigned to duty at Ft. Monroe, Va.

Brooks, Wm. H., capt., Presidio of San Francisco, Hopwood, Lucius L., capt., Army Gen. Hosp., San Francisco, Card, Daniel P., lieut., Army. Gen. Hosp., San Francisco, ordered to report to the commanding officer Sixth Cavalry, on arrival of the Transport *Sheridan* at San Francisco, for duty with command to Ft. Des Moines, Iowa. On completion of this duty to return to their proper stations.

The following changes in stations and duties of officers of the Medical Corps and the Medical Reserve Corps are ordered:

Capt. Carroll D. Buck, to Alcatruz Island, Cal., relieving Capt. Robert M. Thornburgh, who will proceed to the Army Gen. Hosp., San Francisco. First Lieut. Edgar King to Ft. McDowell, Cal. First Lieut. Guy V. Rukke, to the Army Gen. Hosp., San Francisco. First Lieut. Frank E. Artaud, M. R. C., to Key West Barracks, Fla., relieving Capt. Henry K. Brown, who will proceed to Ft. Morgan, Ala., relieving 1st Lieut. Samuel A. Springwater, M. R. C., who will proceed to Ft. St. Philip, La. First Lieut. James C. Dougherty, M. R. C., to Ft. Bliss, Texas, 1st Lieut. Ernest K. Johnstone, M. R. C., from the Presidio of San Francisco to Fort Shafter, H. T., relieving 1st Lieut. Henry du R. Phelan, M. R. C., who will proceed to Ft. De Russy, H. T., relieving 1st Lieut. John P. Kelly, M. R. C., who will proceed to Schofield Barracks, H. I.

Shook, Jay R., capt., January 8, rleieved from duty as attending surgeon at Chicago and ordered to Jefferson Barracks, Mo., for temporary duty for a period of one month, then to Ft. Logan, Colo., for duty.

Sherwood, John W., 1st lieut., M. R. C., January 7, ordered to proceed from Ft. Williams, Me., to Ft. Andrews, Mass., for temporary duty.

Brown, Orville G., capt., January 4, granted 30 days leave of absence.

Brooks, William H., capt., January 7, granted 10 days leave of absence.

The following named officers of the Medical Corps and Medical Reserve Corps are ordered from duty at the stations designated after their respective names and will proceed to San Francisco and take transport to sail from that place about April 5, 1910, for duty in the Philippine Islands:

Capt. John W. Hanner, U. S. Military Academy, West Point, N. Y.
Capt. Leon T. Le Wald, Columbus Barracks, Ohio.
Capt. Orville G. Brown, Fort Robinson, Neb.
First Lieut. Morrison C. Stayer, Ft. McDowell, Cal.
First Lieut. Ralph H. Goldthwaite, Co. C, Hospital Corps. Ft. Niagara, N. Y.
First Lieut. Lewis A. Lavanture, M. R. C., Ft. D. A. Russell, Wyo.
First Lieut. William C. Lyon, M. R. C., Ft. DuPont, Del.
First Lieut. James A. Simpson, M. R. C., Presidio of Monterey, Cal.
First Lieut. Herman N. Bundesen, M. R. C., Ft. D. A. Russell, Wyo.

The following named medical officers will sail May 5, 1910, for duty in the Philippine Islands.

Capt. Herbert G. Shaw, Vancouver Barracks, Wash.
Capt. Jesse R. Harris, Ft. George Wright, Wash.
Capt. Theodore Lamson, Columbus Barracks, Ohio.
Capt. James D. Heysinger, Ft. Ethan Allen, Vt.
Capt. John B. Huggins, Walter Reed Gen. Hosp., Takoma Park, D. C.
First Lieut. Joseph O. Walkup, M. R. C., Ft. Snelling, Minn.
First Lieut. Thomas W. Penrose, M. R. C., Plattsburg Barracks, N. Y.
First Lieut. Edgar F. Haines, M. R. C., Ft. Moultrie, S. C.
First Lieut. James B. Van Horn, M. R. C., Ft. Mackenzie, Wyo.

McCaw, Walter D., lieut. colonel; Darnall, Carl R., major; Russell, Frederick F., major, January 11, detailed to represent the Medical Department of the Army at the United States Pharmacopeial Convention to be held in this city May 10, 1910.

Public Health and Marine-Hospital Service.

Changes for the week ended Jan. 12, 1910:

Korn, W. A., P. A. surgeon, granted 10 days' leave of absence from Jan. 13, 1910.

Preble, Paul, asst.-surgeon, granted 2 days' leave of absence from Jan. 11, 1910.

Cleborne, A. B., acting asst.-surgeon, granted 7 days' leave of absence from Jan. 2, 1910, under paragraph 210, Service Regulations.

Delgado, J. M., acting asst.-surgeon, granted 6 days leave of absence from Dec. 26, 1909, under paragraph 210, Service Regulations.

Dynan, N. J., acting asst.-surgeon, granted 4 days' leave of absence in December, 1909, under paragraph 210, Service Regulations.

Savage, Walter L., acting asst.-surgeon, granted 30 days' extension of leave of absence from Dec. 1, 1909, on account of sickness.

Thornton, M. J., acting asst.-surgeon, granted 6 days' leave of absence from Dec. 20, 1909, under paragraph 210, Service Regulations.

Vandiver, J. C., acting asst.-surgeon, granted 3 days' leave of absence from Dec. 26, 1909, under paragraph 210, Service Regulations.

Watson, H. J., acting asst.-surgeon, granted 11 days' leave of absence from Jan. 1, 1910.

BOARD CONVENED

Board of medical officers convened to meet at the Marine Hospital, San Francisco, Jan. 11, 1910, for the physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon J. M. Gassaway, chairman; P. A. Surgeon R. E. Ebersole; Asst.-Surgeon S. C. Hotchkiss, recorder. Jan. 6, 1910.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WORKS OF SYDENHAM

To the Editor:—I have in my library a volume of "The Entire Works of Thomas Sydenham," revised and corrected by Dr. John Swan and published by Edward Cave, of London, in the year 1749. It gives an account of "The Continued Fever of the Years 1661, 1662, 1663, 1664," and many other diseases. I desire information about this old book, how many volumes are in existence, its probable value, etc. L. Leaming, M.D., Otterbein, Ind.

EFFECT OF DENATURED ALCOHOL ON THE SKIN

To the Editor:—I notice a letter from Dr. Hottendorf, in The Journal, Jan. 15, 1910, p. 221, asking for the effect of denatured alcohol on the skin. A case in point occurred in my practice recently. A male patient had pediculus pubis pandemically, I presume he reinfects himself from uncleanly bed covering. My treatment has been an alcoholic solution of mercury bichlorid. He has used it with good results for the time being, and never had any ill effects. It occurred to me that as he was using so much, it would be cheaper to use denatured alcohol and so changed my prescription. The man applied it but twice and returned to me with marked burns of the root of the penis and scrotum. The skin was red and angry around the burns, which were superficial, and covered with a light crust. I treated the lesions as ordinary burns with happy results. It taught me the folly of false economy. I do not know the denaturing agent, but believe nitrobenzole is sometimes used. Francis Schill, Jr., M.D., Johnstown, Pa.

ANTITYPHOID INOCULATIONS

To the Editor:—Please furnish references to the literature on antityphoid inoculations, and designate those dealing with the technic.

Answer.—In The Journal of May 8, 1909, p. 1518, under Queries and Minor Notes, will be found a number of references. In addition to those are the following:

Leishman: Antityphoid Inoculation in the British Army, *Military Surgeon*, June, 1908; abstr. in The Journal, Aug. 15, 1908, p. 623.

Stone: Typhoid Immunity and Typhoid Inoculation, The Journal, Oct. 16, 1908, p. 1253.

Editorials in The Journal, Dec. 12, 1908, p. 2063, and Dec. 7, 1907, p. 1922.

Nichols: Bacterial Inoculations in Typhoid, *Washington Medical Annals*, November, 1909; abstr. in The Journal, Dec. 11, 1909, p. 2038. This paper deals with the technic.

Editorial in The Journal, Jan. 1, 1910, p. 54. This deals with technic.

GRADUATE STUDY ABROAD

To the Editor:—Please give references to articles that have appeared in The Journal in the past few years concerning graduate medical study in America and Europe. K. T.

Answer:—The answer to an inquiry in The Journal, Nov. 16, 1907, p. 1695, discusses fully the matter of graduate study at home and abroad, and sets out the advantages to be enjoyed in each of the large medical centers of Europe, London, Paris, Berlin and Vienna, giving information as to teachers, clinics, hospitals, fees, living expenses, etc., and also referring to other articles appearing in The Journal on the subject.

June 1, 1907, p. 1879, The Journal gave information concerning work in Vienna, courses, teachers, fees, living expenses, etc.

Oct. 27, 1906, p. 1391, we published a letter on Vienna from the medical student's point of view, which gives valuable information as to the hospitals, men, clinics, fees, living expenses, etc.

Other references are:

"Proposed International System of Graduate Courses," The Journal, July 17, 1909, p. 222.

"Medical Education in France and Germany," abstracted in The Journal, Aug. 28, 1909, p. 740.

"Information Regarding Teachers Abroad," The Journal, Jan. 9, 1909, p. 152.

"Graduate Courses in Germany," The Journal, Jan. 4, 1908, p. 62.

"Graduate Work in Mission Hospitals," The Journal, Feb. 29, 1908, p. 705.

"Graduate Work in Duesseldorf," The Journal, March 28, 1908, p. 1031.

"Psychiatry in Munich," The Journal, Jan. 1, 1910, p. 65.

Information may be obtained personally or by mail from the following:

London: Secretary of the London Postgraduate Association, West Wing, Examination Hall, Victoria Embankment, London.

London: Dean of the Northeast London Postgraduate College, Tottenham, London, N.

London: Dean of the West London Postgraduate College, Hammersmith Road, London, W.

Paris: Continental Anglo-American Medical Society, Dr. Charles G. Jarviss, Secretary, 81 Boulevard Malesherbes, Paris.

Berlin: Medical Inquiry Office, Kaiserin Friedrich-Haus, Luisenplatz, 2, Berlin.

Berlin: Anglo-American Medical Association, 73 Lutzöwstrasse, Berlin.

Vienna: Secretary of the American Medical Association of Vienna, Cafe Klinik, IX Spitalgasse, Vienna.

Articles on graduate study in the United States are rare, but it is stated that, in many subjects, one may receive better and more effective training in this country than abroad.

THE STERILITY OF URINE

To the Editor:—So far as I know from the literature at my disposal, urine collected under aseptic conditions from healthy individuals is sterile. I would like to know whether or not this is correct. Dr. A.

Answer:—Text-books on the urine state that it is normally sterile while in the bladder, but becomes contaminated with micro-organisms in passing through the urethra, as this channel is practically never free from germs. The experiments from which this conclusion has been reached were performed a long time ago and the original sources are not quoted.

LITERATURE ON RHEUMATOID ARTHRITIS

To the Editor:—Please refer me to literature on the etiology, pathology and treatment of rheumatoid arthritis.
R. S. Cummings, M.D., National City, San Diego, Cal.

Answer:—The following are some of the most important articles on this subject published since 1907:

Locke, E. A., and Osgood, R. E.: The Treatment of Non-Tuberculous Chronic Arthritis, The Journal A. M. A., Feb. 2, 1907, p. 388.

Hoffa, A.: Chronic Articular Rheumatism and Arthritis Deformans, The Journal A. M. A., May 11, 1907, p. 1586.

Midelton, W. J.: Treatment of Rheumatoid Arthritis, *Lancet*, London, Sept. 28, 1907; abstr. in The Journal A. M. A., Oct. 26, 1907, p. 1476.

Luff, A. P.: Pathology and Treatment of Rheumatoid Arthritis and Morbid Conditions which Simulate It, *Brit. Med. Jour.*, Oct. 26, 1907; abstr. in The Journal A. M. A., Nov. 23, 1907, p. 1808.

Muse, E. H.: A Case of Multiple Arthritis Deformans, The Journal A. M. A., July 11, 1908, p. 124.

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Nichols and Richardson: *Jour. Med. Research*, September, 1909, xxi, 149.

THE VACUUM BOTTLE IN PROCTOCLYSIS

In The Journal, December 25, 1909, p. 2160, were published two articles describing apparatus for the administration of salines by rectum or hypodermically, both of which made use of the vacuum bottle for maintaining the temperature of the solution used. One was by Dr. R. M. Harbin, Rome, Ga., and the other by Dr. John M. Garratt, Buffalo. Dr. Robert Coleman Kemp, New York City, calls attention to the fact that in the *New York Medical Journal*, August 14, 1909, he published a detailed description of an apparatus for saline infusion making use of the vacuum bottle, and therefore claims priority for this idea. On writing to the doctors above named, Dr. Harbin replies that he had no knowledge of Dr. Kemp's article, as does also Dr. Garratt. Both admit, however, that they had made no previous publication of their ideas, though Dr. Garratt states that the idea of the use of the vacuum bottle for the purpose named occurred to him in September, 1908, and his apparatus was perfected in December, 1908, and has been in use ever since. Drs. Harbin and Kemp do not state when they conceived the idea or first used the vacuum bottle. It would appear, therefore, that though the idea may have occurred separately to these gentlemen Dr. Kemp was first to publish a description of his apparatus. There are differences in the details of the three infusion outfits.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.

NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.

NEW YORK: Albany, February 1-4. Chief of Examinations Division, Dr. Charles F. Wheelock.

WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Oklahoma April and July Reports

Dr. Frank P. Davis, secretary of the Oklahoma State Board of Medical Examiners, reports the written examinations held at Guthrie, April 13-15, and July 12-15, 1909. The number of subjects examined in was 22; total number of questions asked, 150; percentage required to pass, 70.

At the examination held April 13-14, the total number of candidates examined was 38, of whom 23 passed and 15 failed. Three reciprocal licenses were issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1903)	71
Birmingham Medical College	(1908)	92
Northwestern University Medical School	(1897)	86
Central College of Phys. and Surg., Indianapolis	(1905)	80
Keokuk Medical College, College of Phys. and Surg.	(1907)	71
Kansas Medical College	(1900)	79
University of Kansas	(1906) 79; (1907)	83
University of Louisville	(1907)	75
Louisville and Hospital Medical College	(1908)	80, 90
Kentucky University	(1902)	77
Louisville Medical College	(1906)	85
College of Physicians and Surgeons, Baltimore	(1906)	83
Barnes Medical College	(1907)	75
St. Louis University	(1908)	91
North Carolina Medical College	(1906)	79
Syracuse University	(1905)	90
Jefferson Medical College	(1880)	82
Hahnemann Medical College, Philadelphia	(1907)	83
Vanderbilt University	(1907) 92; (1908)	88
Chattanooga Medical College	(1904)	90

FAILED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1908)	65
Bennett College of Eclectic Medicine and Surgery	(1887)	*75
Chicago College of Medicine and Surgery	(1903)	*76
Keokuk Medical College	(1891) 45; (1898)	*70
Louisville and Hospital Medical College	(1900)	*81
Kentucky School of Medicine	(1894)	*74
University of Michigan, College of Medicine	(1893)	49
University Medical College, Kansas City	(1894)	34
St. Louis University	(1905)	*74
Beaumont Hospital Medical College	(1900)	62
Eclectic Medical Institute, Cincinnati	(1889)	60
Knoxville Medical College	(1908)	63
University of the South	(1908)	67
Gate City Medical College†	(1907)	64

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
Chicago College of Medicine and Surgery	(1909)	Illinois
Rush Medical College	(1903)	Illinois
St. Louis College of Physicians and Surgeons	(1908)	New Mexico

At the examination held July 12-15, 1909, the total number of candidates examined was 46, of whom 26 passed and 20 failed. One candidate failed to complete the examination. Five reciprocal licenses were issued. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1909)	74
Northwestern University Med. School	(1893) 80; (1909)	75
Illinois Medical College	(1898)	81
College of Phys. and Surg., Chicago	(1903) 77; (1909)	80
University of Iowa, Homeopathic College	(1906)	76
Kansas Medical College	(1909)	71
University of Kansas	(1909)	83
University of Louisville	(1907)	72, 75
Flint Medical College	(1909)	77
Tulane University of Louisiana	(1908)	72
St. Louis University	(1909)	87
Barnes Medical College	(1898)	72
Beaumont Hospital Medical College	(1894)	75
Epworth University	(1908) 74; (1909)	73, 75
Jefferson Medical College	(1909)	80
University of Texas	(1900)	70
Meharry Medical College	(1907) 75; (1909)	73
University of the South	(1908)	74
University of Nashville	(1909)	85
Vanderbilt University	(1900)	75

FAILED

University of Arkansas	(1892)	57
Bennett College of Eclectic Medicine and Surgery	(1887)	*‡72
Chicago Homeopathic Medical College	(1891)	*76
Keokuk Medical College	(1891)	‡57
Kentucky University	(1906)	60
Kentucky School of Medicine	(1894)	*‡74
University of Louisville	(1909)	*71
Tulane University of Louisiana	(1909)	69
University of Michigan	(1873)	‡51
Kansas City Hahnemann Medical College	(1908)	*71
St. Louis University	(1909)	*74
St. Louis College of Physicians and Surgeons	(1909)	65
University Medical College, Kansas City	(1894)	‡67
Eclectic Medical Institute, Cincinnati	(1889)	‡56
University of Pennsylvania	(1890)	*79
Northwestern Medical College, St. Joseph	(1893)	67
Tennessee Medical College	(1900)	‡63
University of Nashville	(1909)	66
Knoxville Medical College	(1908)	65
Chattanooga Medical College	(1902)	*71

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
Chicago College of Medicine and Surgery	(1909)	Illinois
Hahnemann Med. College and Hospital, Chicago	(1900)	Illinois
Northwestern University Medical School	(1907)	Illinois
Indiana Medical College	(1906)	Indiana
Chattanooga Medical College	(1908)	Tennessee

* Fell below the minimum of 50 per cent. in one or more branches.

† Regarding the character of this school, see JOURNAL A. M. A., Oct. 19, 1907, p. 1385.

‡ Second examination.

North Carolina June Report

Dr. Benjamin K. Hays, secretary of the Board of Medical Examiners of North Carolina, reports the written examination held at Asheville, June 9, 1909. The number of subjects examined in was 14; percentage required to pass, 80 and not less than 35 in any one branch. The total number of candidates examined was 116, of whom 97 passed, 18 failed and 1 withdrew. Thirteen reciprocal licenses and 14 limited territory licenses were granted at this examination. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Examined.
George Washington University	(1908)	1
Atlanta College of Phys. and Surg.	(1900) (2, 1909)	3
Atlanta School of Medicine	(1909)	5
University of Louisville	(1909)	1
College of Physicians and Surgeons, Batimore	(1909)	1
Woman's Medical College of Baltimore	(1909)	1
Baltimore Medical College	(1908)	1
University of Maryland	(1906) (1907) (10, 1909)	12
Johns Hopkins University	(1907) (1909)	2
University of Michigan	(1909)	1
Columbia University, College of Phys. and Surg.	(1909)	1
North Carolina Med. College	(1907) (1908) (12, 1909)	14
University of North Carolina	(1909)	12
Leonard Medical School	(1908) (9, 1909)	10
University of Pennsylvania	(1909)	4
Jefferson Medical School	(1909)	8
University of the South	(1904)	1
Tennessee Medical College	(1896) (1908)	2
Medical College of Virginia, Richmond	(1909)	3
Univ. Coll. of Med., Richmond	(2, 1908) (12, 1909)	14

FAILED

College	Year Grad.	Per Cent.
University of Maryland	(1904)	60
Leonard Medical School	(1909)	74, 75, 76
University of North Carolina	(1909)	74
Knoxville Medical College	(1908) 66; (1909)	60
University of the South	(1905) 42; (1909)	77
Chattanooga Medical College	(1900) 55; (1908)	62, 68
Tennessee Medical College	(1904)	50
University of Nashville	(1908)	67, 71
Meharry Medical College	(1905)	58
University of Tennessee	(1908)	62
Gate City Medical College	(1904)	52

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with.
George Washington University	(1906)	Maryland
Medical College of Georgia	(1894)	Georgia
College of [illegible] Surgeons, Indianapolis	(1898)	Indiana
University [illegible]	(1859)	Illinois
Tufts Colle[illegible]	(1907)	Mass.
North Car[illegible] College	(1896)	Penna.
Columbia [illegible] of Phys. and Surg.	(1906)	New York
Tennessee [illegible]	(1894)	Tennessee
Medical C[illegible]	(1905)	Virginia
Univ. Coll. of Med., Richmond	(1905) (1906) (1907)	Virginia
Army Medical College	(1892)	U. S. Army

GRANTED LIMITED TERRITORY LICENSES

College	Year Grad.	Total Number
Tennessee Medical College	(1891)	1
University of Tennessee	(1905) (1906)	2
Non-graduates		11

Marriages

Leander J. Nickell, M.D., Blaine, Ky., to Miss Ethel Coldiron of Relief, Ky., recently.

Richard Marion Nelson, M.D., to Miss Anna Moore, both of Colon, Panama, recently.

Richard A. Burke, M.D., to Miss Libbie Cox, both of Ishpeming, Mich., December 29.

William C. McRee, M.D., to Miss Sallie Mae Elder, both of Trenton, Tenn., January 7.

James Edwin Ray, M.D., Boston, to Miss Maude E. Murdock of Carthage, Mo., December 31.

George Warner Mosher, M.D., Chicago, to Mrs. Mary Isabelle Fixen of Racine, Wis., January 5.

E. J. Horan, M.D., Glenwood Springs, Colo., to Miss Lucy M. McLearn of Rifle, Colo., December 29.

Augustus Leon Beier, M.D., Chippewa Falls, Wis., to Miss Elizabeth Wilkins of Boyd, Wis., January 3.

Hampden Aulick Burke, M. D., Petersburg, Va., to Miss Ethel May Francis, at Petersburg, January 6.

Harold Wellington Jones, M. C., U. S. Army, to Mrs. Evarts Ewing Munn in Pittsfield, Mass, January 1.

Charles P. Vincent, M.D., Enoree, S. C., to Miss Essie Drummond of Lanford, S. C., at Woodruff, S. C., December 29.

Deaths

Washington Lafayette Schenck, M.D. Dartmouth Medical School, Hanover, N. H., 1849; formerly a member of the American Medical Association, and first vice-president in 1888; president of the Kansas State Medical Society in 1877; of the Kansas East District Medical Society in 1880; of the Warren County, Ohio, Medical Society in 1854; and a member of the Topeka Medical Society and the Kansas Historical Society; professor of hygiene and state medicine in the University of Kansas City; adjunct professor of practice of medicine and professor of hygiene and preventive and state medicine in Kansas Medical College, of which he was one of the organizers; surgeon of the Seventh Ohio Volunteer Infantry, later in charge of army hospitals Nos. 10 and 15, and on the staff of Major General Hamilton; and afterwards surgeon on the Board of Enrollment of the Third Ohio Congressional District during the Civil War; at the close of the war, deputy U. S. tax collector in Camden, Ark.; pension examiner for Osage county, Kan., and a member of the school board of Sage City and of Franklin, Ohio; for four terms a member of the Kansas State Board of Health; once mayor of Franklin, Ohio; a trustee of Antioch College, Yellow Springs, Ohio, and the Kansas Medical College; local surgeon for the Denver and Rio Grande Railroad and the Colorado Fuel and Iron Company at New Castle, Colo., in 1895 and 1896, and for the Santa Fe System and Missouri Pacific Railroad at Osage City from 1872 to 1890; died at his home in Topeka, January 4, from pneumonia, aged 84.

Peter Brough Montgomery, M.D. Bellevue Hospital Medical College, 1886; of Chambersburg, Pa.; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; vice-president of the Cumberland Valley Medical Association; formerly president of the Medical Society of Franklin County; once coroner and twice a member of the city council; and a member of the staff of Chambersburg Hospital; died suddenly at Buena Vista, Fla., where he had gone for rest, from influenza, aged 47.

Howard Alden Reed, M.D. University of Pennsylvania, Philadelphia, 1903; Army Medical School, 1906; a member of the American Medical Association and Association of Military Surgeons of the United States; who enlisted in the army as a private in the artillery, and served during the Spanish-American War; was appointed first lieutenant in the Medical Corps June 20, 1906, and was retired with the rank of captain on account of disability incident to the service in 1909; died at Milford, Pa., January 2, from tuberculosis, aged 34.

James Wellington Byers, M.D. Atlanta (Ga.) Medical College, 1882; formerly secretary of the Charlotte (N. C.) Academy of Medicine; secretary of the city board of health; secretary and treasurer of the Mecklenburg county board of health; a member of the Medical Society of the State of North Carolina, and surgeon of the Fourth Infantry, N. C. State Guard; for a few months a resident of Milledgeville, Ga.; died in that city, January 3, aged 48.

William C. McCulloch, M.D. Albany (N. Y.) Medical College, 1897; a member of the American Medical Association; and for two terms president of the board of health of Gloversville; once president of the Gloversville and Johnstown Medical Society, and for two terms president of the board of health of Gloversville, N. Y.; died suddenly from cerebral hemorrhage, at the home of a patient while making a professional call, January 8, aged 38.

David W. Coon, M.D. Missouri Medical College, St. Louis, 1891; a member of the American Medical Association and formerly president of the Grundy County (Mo.) Medical Society; for four terms coroner of Grundy county and county physician twice; for two terms county treasurer, and for four terms city physician of Trenton; died at his home January 10, as the result of injuries received in a fall a few days before, aged 55.

Allen S. Heath, M.D. New York University, New York City, 1844; formerly a member of the Kings County Medical Society, and Brooklyn Pathological Society; surgeon in the U. S. Navy for fifteen months, and afterward chief surgeon of volunteers during the Civil War; said to have been the oldest graduate of his alma mater; died at the home of his daughter in New York City, January 2, from senile debility, aged 88.

Zachariah Carnes, M.D. University of Louisville, 1877; a member of the Indiana State Medical Association; a veteran of the Civil War; at one time president of the Johnson County Medical Society; for twenty years local surgeon of the Pennsylvania System, and for many years a member of the school board; died at his home in Greenwood, January from tuberculosis, aged 71.

William Jackson McHench, M.D. University of Michigan, Ann Arbor, 1858; acting assistant surgeon in the Army during the Civil War; of Brighton, Mich.; for many years division surgeon of the Pere Marquette Railway; died in Bradentown, Fla., where he had gone for his health for the winter, January 1, from heart disease, aged 78.

Charles Harrison Shackford, M.D. Harvard Medical School, 1849; a charter member of the Harvard Alumni Association, and for forty years a member of the American Medical Association; a member of the staff of Frost Hospital, Chelsea, Mass., for thirteen years; died at his home in that city, December 25, aged 85.

William Bradley Chase, M.D. Jefferson Medical College, Philadelphia, 1857; for several years a member of the school board of Swampscott, Mass.; a member of the board of selectmen, and for two years postmaster; died at his home in Lynn, Mass., January 4, from cerebral hemorrhage, aged 76.

Jefferson Davis Pryor, M.D. University of Louisville, 1890; a member of the Kentucky State Medical Association; of Mayfield; died at Riverside Hospital, Paducah, January 7, from meningitis, the result of severe burns received by the explosion of a stove in his office 27 days before, aged 47.

Leonard A. Kittinger, M.D. Hahnemann Medical College, Philadelphia, 1881; secretary of the Homeopathic Board of Medical Examiners of Delaware; and treasurer of the Homeopathic State Medical Society; died at his home in Wilmington, January 1, from cerebral hemorrhage, aged 49.

John L. Carson, M.D. Northwestern Medical College, St. Joseph, Mo., 1894; a member of the Medical Society of the State of California, and San Joaquin Valley Medical Association; local surgeon of the Santa Fe System at Bakersfield; died at his home, December 24, aged 48.

William Symington Brown, M.D. Penn Medical University, Philadelphia, 1854; a member of the Massachusetts Medical Society; assistant surgeon of the Thirty-third Massachusetts Volunteer Infantry during the Civil War; died at his home in Stoneham, Mass., January 6, aged 89.

Herman H. Dinsmore, M.D. University of Vermont, Burlington, 1897; of Enfield, N. H.; formerly pathologist to Notre Dame Hospital, Manchester, N. H.; and a member of the Manchester Medical Association; died at the home of his mother in Manchester, January 3, aged 36.

Alfred H. Hoadley, M.D. Albany (N. Y.) Medical College, 1886; a member of the American Medical Association; attending surgeon to Dickinson Hospital, Northampton, Mass.; died in that institution, December 29, from septicemia, due to an operation wound, aged 54.

James Russell Post, M.D. Philadelphia, 1871; formerly a practitioner of Picton, Ont.; physician to the Rome, N. Y., jail, a city physician and a member of the staff of the Rome hospital; died at his home in Rome, December 22, from nephritis, aged 60

Darius W. Loree, M.D. University of Michigan, Ann Arbor, 1860; a member of the Michigan State Medical Society; for half a century a practitioner of Ridgeway; died at his home in that village, January 9, from disease of the stomach, aged 76.

William A. Monnish, M.D. Atlanta (Ga.) Medical College, 1890; formerly of Atlanta, Ga.; died in his apartments in San Francisco, January 2, from the effects of chloroform, believed to have been self-administered with suicidal intent, while despondent, aged 48.

William T. Milstead, M.D. Louisville Medical College, 1890; a member of the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee, died at his home in Hot Springs, Ark., December 29, from nephritis, aged 43.

John G. L. Gaedeke, M.D. Eclectic Medical College of the City of New York, 1881; formerly an examiner in lunacy of New York State; died at his home in New York City, December 25, from heart disease, aged 55.

Henry D. Shonts, M.D. Philadelphia; for nearly seventy years a practitioner of medicine; and for more than half of that time in Centerville, Iowa; died at his home in Chicago, January 10, from pneumonia, aged 86.

Charles L. Seip, M.D. Hahnemann Medical College, Philadelphia, 1882; Philadelphia College of Anatomy and Surgery, 1872; died at his home in New Bedford, Mass., December 30, from cerebral hemorrhage, aged 67.

C. M. Stewart, M.D. Cleveland Medical College, 1846; a charter member of the first medical society to be organized in Mercer county, Pa.; died at his home in Mercer, January 5, from senile debility, aged 85.

Montrose Mitcheltree Magoffin, M.D. University of Pennsylvania, Philadelphia, 1852; a member of the American Medical Association; died December 30 at his home in Mercer, Pa., from heart disease, aged 69.

Alexander Edwin Turner, M.D. University of Pennsylvania, Philadelphia, 1874; a member of the Tennessee State Medical Association; died at his home in Neboville, near Newbern, Tenn., January 4, aged 56.

George W. Scranton, M.D. Tulane University, 1874; of Scott, La.; a member of the legislature in 1894 from Lafayette parish; died at the home of his daughter in Youngsville, December 29, aged 60.

Sarah C. Brigham, M.D. Worcester (Mass.) Medical College; Eclectic Medical Institute, Cincinnati, 1857; died at her home in Fitchburg, Mass., December 15, from senile debility, aged 85.

William Murdoch, M.D. Cleveland University of Medicine and Surgery, 1873; a homeopathic practitioner of Akron, Ohio; died at his home in that city, January 2, from pneumonia, aged 67.

Alfred Mathias Spalding, M.D. College of Physicians and Surgeons, New York City, 1883; a member of the New York Academy of Medicine; died at Speonk, L. I., January 3, aged 53.

Henry M. Nipple, M.D. Jefferson Medical College, 1871; a member of the Snyder County (Pa.) Medical Society; died at his home in Selinsgrove, Pa., December 10, from pneumonia, aged 71.

Joseph Francis Hume, M.D. Cincinnati, 1854; a veteran of the Civil War; at one time postmaster of California, Mo.; died in Kansas City, Mo., September 19, from senile debility, aged 86.

John Lee Roach, M.D. Dallas (Texas) Medical College, 1904; a member of the Hunt County Medical Society; died at his home in Lone Oak, Texas, January 4, from pneumonia, aged 41.

Albert Simon, M.D. University of Berlin, Germany, 1849; a surgeon of volunteers during the Civil War; died at his home in Reading, Pa., December 30, from senile debility, aged 81.

William F. Clary, M.D. Castleton (Vt.) Medical College, 1855; a member of the Tennessee State Medical Association; died at his home in Bellbuckle, Tenn., January 9, aged 79.

Benjamin Bond Perkins, M.D. Jefferson Medical College, 1877; formerly of Chestertown, Md.; died at his home in Philadelphia, December 22, from heart disease, aged 82.

Solomon Williams (license, Texas, years of practice); a Confederate veteran; and for twenty years postmaster of Cove, Texas; died at his home, December 8, aged 64.

D. F. Morrison, M.D. Atlanta (Ga.) Medical College, 1891; died at his home in Brooksville, Fla., December 26, from the effects of an overdose of chloroform, aged 41.

William R. Jones, M.D. University of Virginia, Charlottesville, 1861; of Hawesville, Ky.; died in Louisville, December 27, after a surgical operation, aged 71.

Robert Edward Lee Rodgers, M.D. Jefferson Medical College, 1890; at one time a physician of Chicago; died at his home in Millsboro, Pa., January 2, aged 45.

B. H. Morehead, M.D. Kentucky School of Medicine, Louisville, 1866; a Confederate veteran; died at his home in Sacramento, Ky., December 31, aged 69.

H. M. Wagner, M.D. Columbus Medical College, 1879; died suddenly at his home in Newark, Ohio, January 3, from cerebral hemorrhage, aged 58.

Mary J. Taylor, M.D. Pulte Medical College, Cincinnati, 1881; died at her home in Greencastle, Ind., December 20, from senile debility, aged 84.

Thomas P. Seller, M.D. Rush Medical College, 1854; died at his home in Indianapolis, December 19, from senile debility, aged 84.

Amos L. Norris, M.D. Rush Medical College, 1872; died at his home in Farmer City, Ill., December 16, from paralysis, aged 62.

John K. Smith, M.D. Jefferson Medical College, 1875; died at his home in Harrisburg, December 25, from pneumonia, aged 65.

Lemuel J. Wood, M.D. Baltimore University, 1887; died at his home in Kelton, S. C., December 27, from acute gastritis, aged 46.

William E. Chappell, M.D. University of Nashville, 1878; died at his home in Kansas City, November 11, aged 68.

Society Proceedings

COMING MEETING

Medical Society of State of New York, Albany, January 25.

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Annual Meeting, held in New York City, Nov. 27, 1909.

(Continued from page 228)

Retrogression of a Case of Lymphosarcoma After Laparotomy

DR. WARFIELD T. LONGCOPE, Philadelphia: The case was that of a man aged 33, who was admitted to the Pennsylvania Hospital on April 20, 1909. He had had swelling of his abdomen for 26 days before admission, with some pain; 10 days before admission three quarts of fluid were removed by tapping. Soon after admission the enormously swollen abdomen was tapped and six quarts of turbid yellow fluid were removed. This was alkaline and of 1024 specific gravity. On standing there was a heavy white precipitate, composed almost entirely of broken cells, the character of which could not be definitely made out. There were, however, a few cells which resembled lymphocytes. No tubercle bacilli were found, nor could other bacteria be demonstrated either in smears or by cultures. Since the sediment contained no proteolytic ferments it was thought probable that the exudate was composed principally of small lymphocytes. The hemoglobin was 88 per cent., white blood corpuscles 8,100. There was no fever. Considering the possibility of tuberculous peritonitis, an operation was performed by Dr. LeConte, at which large quantities of greenish, milky fluid escaped from the peritoneum. The peritoneal surface, the omentum, and the mesentery were found to be studded with small reddish nodules several millimeters in diameter, and in a loop of the small intestine there was a large tumor mass somewhat bigger than one's fist. The condition was supposed to be carcinoma with general carcinosis of the peritoneum, and since the case was considered hopeless the abdomen was closed. Two weeks after the operation fluid had reaccumulated in the abdomen and 54 ounces were removed by tapping. The patient gradually grew weaker, the temperature was exceedingly low, the respiration slow, emaciation marked, but until his death, about six weeks later, there was no marked reaccumulation of fluid.

At autopsy two liters of pale opalescent fluid were found in the peritoneum, but the peritoneal surfaces, though very slightly thickened, were perfectly smooth and glistening, and at first sight nothing resembling the appearance at operation could be seen. On more careful examination, however, very minute fibrous tags were found extensively scattered over the peritoneum. There were besides a few definite raised tumor-like nodules 1 or 2 mm. in diameter. In the jejunum there were 3 small areas of thickening, which bore slight resemblance to the large tumor mass found at operation. In the pleural cavities there was opalescent fluid. No changes bearing particularly on the case were found in any of the other organs, except the intestines, kidneys and pancreas. Throughout the duodenum the mucous membrane of the intestines was thickened in patches and the mucosa was covered with what looked like a yellowish-green membrane. This was most marked in the regions of the localized thickened areas. On section through these portions the wall of the jejunum was rather tough, and fibrous in appearance, and showed yellowish streaks. The mesenteric and retroperitoneal glands were enlarged to the size of almonds. Sprinkled over both the surface and cut section of the kidney there were numerous small, flat, white areas. The pancreas was large and firm. Microscopic examination showed that the tumors in the jeunum were typical lymphosarcomata, such as has been described by Kundrat, Sternberg, MacCallum and others. In the large areas there was extensive degeneration of the tumor cells with much growth of connective tissue, which gave a scar-like appearance to the sections. In the retroperitoneal glands tumor cells were found through the section, but rarely involved the entire node. The small masses in the kidney proved to be typical secondary growths without any evidences of cicatrization. Small growths were also found in the pericardium, and fairly extensive growths in the pancreas which showed besides an extreme grade of chronic intra-acinar and perilobular pancreatitis. The only explanation for the autopsy findings is that there must have been extensive and widespread degeneration of the tumor masses covering the peritoneum and in the wall of the intestines, with partial healing by the formation of connective tissue. Exactly what caused this change in the tumor growth it is impossible to say, and it is doubtful whether the laparotomy exerted any influence in this direction. It is more probable that these tumors of themselves retrogressed.

The Present Status of Our Knowledge of Heredity in Tumors

Dr. E. E. Tyzzer, Boston: The conception of cancer as an inherited condition is apparently less generally held than formerly, and this aspect of the problem has been somewhat neglected during recent years. A great part of the investigation bearing on this question has been of a statistical nature, with the object in view of determining whether the incidence of cancer is greater in the parents or the antecedents of cancer patients than in the antecedents of non-cancerous patients. Such inquiries have furnished results that are often diametrically opposed. Most of the more recent statistical investigations have yielded results which fail to establish the importance of heredity in cancer. Pearson, working with data derived from the Middlesex Hospital, found a history of cancer in 359 out of 2,368 antecedents of cancerous patients as compared with cancer in 102 of 753 antecedents of non-cancerous patients. With an estimated probable error of .04, the coefficient of .0335 for the cancer heredity is of no significance apart from the fact that it tends to show that heredity is not an important factor in the incident of cancer. More recently Bashford and Guillot, each employing the statistical method, have obtained similar results. Another mode of inquiry has to do with the frequency of cancer in certain families. The great frequency of cancer in certain families is generally recognized, for example the famous family of "Madame Z.," reported by Broca, in which there were 15 deaths from cancer in 26 offspring which attained the age of 30 years. Statisticians, however, point out the rarity of such families, and, from a consideration of the general distribution of cancer in the population at large, regard their occurrence as coming within the law of probabilities. The subsequent history of the above-named family is at the present time being investigated by Ledoux-Lebarde. The experimental side of the study of heredity in cancer has been for the most part neglected. Whether epidemics of cancer in mice, such as have been reported by Borrel, Michaelis, Gaylord, and others are to be attributed to heredity remain undetermined. It would appear that, inasmuch as statistical inquiries with regard to heredity in cancer lack accuracy and are surrounded by almost insurmountable difficulties, the only solution of this problem lies in the experimental breeding of short-lived animals. In this way only will it be possible to control the conditions under which the animals live, and to obtain accurate data concerning the incidence of cancer. In one of the families of mice which I have kept under observation there were 65 offspring of a mouse with a tumor of the lung, and tumors developed in 20 or 32 per cent. of these. These results, although not conclusive, indicate that this subject demands further investigation.

DISCUSSION

Dr. Leo Loeb, Philadelphia: It seems to me that the cases of the so-called endemic occurrence of tumors, as found by Hanau and myself, and later by other investigators, point strongly to the existence of hereditary factors in the etiology of cancer; they certainly cannot be ascribed to accident. The statistical studies of cancer in man take no account of the great differences that exist in different varieties of cancer; and until statistics take account of such variations and are made to refer more particularly to specific varieties of tumors, they will not have much value in deciding the importance of heredity. Dr. Tyzzer's breeding experiments, however, attack this problem in an exact manner.

Dr. James Ewing: I think that Dr. Loeb's remarks have an obvious application to the field of heredity. Some tumors show a different relation to heredity from others.

Report on Rat Carcinoma

Dr. Simon Flexner, New York: At previous meetings of this association Dr. Jobling and I reported on a rat tumor which developed from the seminal vesicle. When the study of the tumor was first taken up it was regarded as a peculiar sarcoma, and when the tumor had undergone certain changes in the course of transplantation it was regarded as a probable carcinoma. The tumor has now been propagated for about four years and has passed through many generations. At present it presents the characteristics of an adenocarcinoma, of pure and beautiful type. The carcinomatous structure became dominant in the fifth generation, at which time the first lymphatic gland metastases appeared; but at that time and for many subsequent generations the tumor had not assumed a pronounced adenocarcinomatous form. Since about the twentieth generation, however, this form of structure has become established, but in the earlier generations the transplantations of a given tumor would yield in some rats a pure adenomatous growth, and in others an imperfect adenomatous or a mixture of adenomatous and simple carcinomatous growth. We have concluded from these observations that as the type of tumor was slowly changing toward adenocarcinoma, which has now become predominant, the change was affected by the individual animals in which the tumor was implanted. In other words, that two sets of forces affected the result; the one being latent in the tumor and the other being present in the organism of rats inoculated. A minute study of the original tumor showed the existence of definite carcinomatous alveoli within the mass arising from the seminal vesicle, and that these alveoli were located close to the original epithelium of the vesicle from which it was derived. The mass of the tumor, however, was of much less definite organoid structure. The minute study has also rendered it probable that the original tumor was of a teratomatous or embryonal nature.

Comparison of Conditions that Regulate the Growth of Transplanted Tumor and Transplanted Embryo

Dr. Peyton Rous, New York: Much is now known of the behavior of transplantable tumors in the new host, of the conditions which regulate transplantation, and of the phenomena immediately concerned with growth or death of the introduced neoplasm. But there has been no successful attempt to determine what is here peculiar to tumor as apart from that common to transplanted tissues in general. Schöne

(*Beitr. z. klin. Chir.*, 1908-09, lxi, 1) has directed an investigation specifically to the point, but the method he employed—transfer of skin from the back of one mouse to another—proved ineffective. The transplantation was seldom successful except in blood-related animals. For experiments hashed mouse-embryo has been used. A host of workers have proved that embryonic tissue introduced into another animal fails to give rise to a true neoplasm; but they have also shown that for a period it will grow. Mouse embryo seemed especially favorable to my purposes because of its rapid development and retrogression, as well as because of the ease with which it can be handled. Since tumors of the mouse are transplantable, parallel observations were often conducted through the injection of a definite quantity of tumor in the subcutaneous tissue of an animal's one side and of embryo on the other side. In this way the following facts have been ascertained: 1. Mice differ much as hosts for transplanted embryonic tissue. In one it may grow excellently, in another not at all, and in a third but slightly. These variations in fate of the grafts are not due to variation in the elements composing them. The tissues which survive transplantation (mainly cartilage, squamous epithelium and connective tissue) are well distributed in the embryo-hash and can be found alike in the grafts that "take" and in those that do not. 2. The growth or failure of implanted embryonic tissue depends on the appearance or non-appearance of a reaction from the host-tissues analogous to that for implanted tumor. If the bit of neoplasm is to grow, the host furnishes it a stroma and vascularizes it. So too with embryonic tissue. When a tumor graft fails, all of it becomes rapidly necrotic except those cells at the edge, in contact with the host tissues, and presumably nourished by diffusion from them. The same is true for an embryo graft. 3. The conditions of age, nutrition, race and "soil," which play an important part in the success or failure of a tumor graft, play the same part for embryo grafts. Embryo grafts grow best in young animals, in well-nourished ones, in those of the same variety, and better in the subcutaneous tissue of the mother than in that of controls. When mouse-embryo is introduced into rats it survives for some days, and a vigorous connective-tissue reaction from the host appears, but despite this it fails to develop as it would in animals of its proper species. The same is known to be true for tumor. 4. An immunity to embryo grafts can be produced by injections of embryo, just as immunity against implanted tumor is obtained by tumor injection. Whether it is possible to immunize with tumor against embryo is a point I have not yet tested. But Schöne has found that the converse holds: animals can be immunized against tumor by embryo injections. These observations cannot be taken as evidence for Cohnheim's theory of tumor origin. They fail to touch on that property of continuous growth which ultimately distinguishes tumor grafts from embryo grafts and tumor from all normal tissue. But they show that the natural immunity of an animal to transplanted tumor is not the expression of a special tumor immunity but only an example of tissue immunity. The immediate mechanism of protection as well as the conditions (so far as we know them) which determine it are the same for a normal tissue and for tumor. Acquired immunity to transplantable tumors is not an unique phenomenon but an instance of acquired tissue immunity. These facts are difficult to reconcile with the theory of a parasitic origin for cancer.

DISCUSSION

Dr. E. E. Tyzzer, Boston: In my opinion the failure of a tumor-graft is consequent on a reaction in the surrounding tissues, inflammatory in its nature.

Dr. C. R. Stockard, New York City: I have made many transplantations of the embryonic tissue of lower animal forms and have found the success of the graft to depend largely on the organ into which it is implanted. Liver tissue did better when transplanted into livers than elsewhere. I have further noted that the nearer the age of the part and that of the transplanted tissue are, the better are the results obtained. Embryonic tissue succeeded especially well when implanted in young animals, because these animals were more nearly of its age, developmentally speaking, than older ones. I have also observed that embryonic tissues at different periods of development manifest differences in transplantability. I think that all these factors must be considered in interpreting Dr. Rous's results.

Dr. P. Rous, New York: In all my work the same site for implantation was used—the subcutaneous tissue of the side. Differences in transplantability, due to differences in the developmental period of the embryos, have been recognized by a number of observers. Because of this factor I employed mouse-embryos from 1.0 to 1.6 centimeters in length. Within the developmental limits thus assigned no important differences in transplantability are to be found. Only embryos of the same litter, and therefore of the same period of development, were taken for the hash used in a given experiment. Some of the most recent results are at variance with Dr. Stockard's finding, that the nearer the developmental period of host and implanted tissue are the better will be the results of the graft. An embryo-hash was injected into a number of mice born from one to three days previously into a series three-quarters grown and into some old ones. In those three-fourths grown the introduced tissue did better than in the old, as was to have been expected; but in the very young animals, practically no growth of it took place. The phenomenon is probably to be explained in terms of tissue avidity. The actively growing tissue of the very young mice may be supposed to take up with great avidity the nutritive stuffs of the body, and the introduced fragments of embryo are ill situated for competition. Fragments of the same sort in an older host have to compete with relatively inert tissues.

(*To be continued*)

PHILADELPHIA AND NEW YORK NEUROLOGICAL SOCIETIES

Joint Meeting, held in Philadelphia, Dec. 18, 1909

Dr. T. H. Weisenburg, President of the Philadelphia Society, in the Chair

Tic of the Tongue

Dr. Charles S. Potts, Philadelphia: According to Meige and Feindel, uncomplicated tics of the tongue are very rare. In this case while other muscles have been and are now at times affected, the movements of the tongue are those which are most prominent. The patient, A. G., is 45 years of age, married and is a house painter by occupation. One sister had chorea and his father was a man of very nervous temperament who treated the patient, when a child, very roughly. The man has used tobacco and alcohol moderately and until a year ago, coffee excessively. Until he was 20 years old he was in good health. At that time a skin eruption of some sort appeared on each side of the mouth; this annoyed him and he would draw up the corners of his mouth in an effort to relax the skin; this was followed by closing the eyes (blepharospasm). Then he began to have biting movements, bringing the teeth together with such force that a number of them were broken off. The muscles of the neck and shoulders also became affected. These various movements continued for five years, when they disappeared; and nothing of the sort was manifest for fourteen years, although during this period he had several spells of what he terms "nervous breakdown." Six years ago, without ascertainable cause, he began to have spitting movements, which were followed by paroxysmal protrusion of the tongue. At present at times there are quick contractions of facial and neck muscles, with at long intervals the emission of an explosive sound as is sometimes made in spitting. The most striking phenomenon, however, is a wide opening of the mouth with a quick protrusion of the tongue; usually this is so pronounced that the palatal arches are markedly drawn forward and at times the tip of the epiglottis is visible. The entire organ is hypertrophied, the papillæ being much enlarged. Speech is not interfered with. At times while walking he makes a half turn to the right and elevates the right leg. Physical examination is negative, except that the knee jerks are increased and a chronic pharyngitis is present. The man conducts his business and sleeps well. The movements are much worse at some times than others, being almost absent for days. They are always worse when he feels unwell from any cause.

Case of Amyotrophic Lateral Sclerosis, or Lead Poisoning

Dr. John K. Mitchell, Philadelphia: The variations in the form of lead intoxication are many, ranging from the more common simple peripheral neuritis to cases like the present, which in advanced stages can in no way be distinguished from amyotrophic lateral sclerosis. In saturnine poisonings involving the spinal cord we see now and then some which altogether resemble chronic poliomyelitis, loss of power advancing steadily and equally with the wasting of the muscles. In another form motor weakness is the earliest symptom and atrophy occurs only as a later manifestation, with unchanged sensibility and the reflexes preserved or increased. The present case is of another type and from the first has progressed, so far as can be learned from the patient, in a manner impossible to differentiate from an amyotrophic lateral sclerosis. Indeed it is only the previous history of serious lead poisoning which suggests the probability that the trouble owes its origin to lead. The chief objection to this theory is the difficulty of accounting for the continued action of the poison so long after all possibility of its entering into the system has ceased. There is no evidence at this moment of the presence of lead in the body. In the history only a very slight ocular muscle enfeeblement is described, a point of difference from asthenic bulbar palsy. Dr. Cadwalader, who has been much interested in the case, has suggested, as favoring the probability of a saturnine origin, that the supinator longus has escaped any enfeeblement, as it usually does in lead neuritis. Gowers, Putnam, and, recently in the *Review of Neurology*, S. A. K. Wilson have described similar cases, some certainly caused by lead, others with a strong probability in favor of such a cause.

The patient is a house painter aged 53. He has never had wrist drop. He worked at painting until three years ago from this time. Until one year ago he had charge of kennels at Irvington-on-Hudson. About a year after recovery from the second attack of lead colic in 1907, the present difficulty began; the first symptoms were stiffness, soreness, and occasional cramps in muscles of the thigh and legs. Beginning in the autumn of 1907, these symptoms lasted about seven months. In the spring of 1908 he observed twitching of muscles of legs, arms and trunk, together with difficulty in walking. In October, 1908, he perceived a slight difficulty of speech. For three months there has been definite bulbar speech. He has lost much flesh; arms were weak for four months. There is no nystagmus — pupils react to light promptly. There is no bladder or rectal difficulty. Gait is spastic-paralytic; station—slight swaying. There is no facial paralysis, but there is faint tremor of facial muscles; the tongue cannot be protruded beyond the teeth nor elevated, it is tremulous and presents some fibrillary twitching but no atrophy.

Dynamometer: The right is 30 and the left 33; the man is right handed.

Examination: The patient is very thin, but there is no characteristic atrophy. Muscles are almost symmetrically wasted everywhere. Knee-jerk is exaggerated. Ankle-jerk is present and active; there is no ankle clonus; plantar reflex is normal; no Babinski. He has fibrillary tremors of muscles; no intention tremors. Muscles of hands are much wasted. He chokes when he takes liquids, but there is no regurgitation through nose. Pupils are equal, react well to light and accommodation. There is no impairment of ocular movement. Electric examination shows equal response to the negative and positive currents below the knees, but there is small faradic response above the knees, and in all the arm muscles, except the extensors of right hand, the response is less to faradic than galvanic current, but no reversal. In extensors of right hand the response is nearly gone to both currents, still no reversal. The face muscles give good response. The voluntary movement of the arms is free in all directions.

Second examination, after five weeks' treatment, Nov. 24, 1909, by Dr. Cadwalader: Condition is slightly improved over first statement. Abdominal muscles are normal. All muscles of forearms, extensors and flexors are atrophied but equal. Possibly the extensors are more affected than the flexors, more so on right than on left side. Still there is no actual wrist drop. The interossei of both hands, also hypothenar muscles on both sides are much wasted, the right being worse than the left. All movements can be well performed, although weaker than normal. Biceps and triceps jerks are increased, but equally so on both sides. Muscles of legs below the knees are much atrophied, more so on right than left. There is no contraction or fibrillary twitching. The anterior tibial muscles are more affected than the posterior, so there is foot drop on both sides. There is flexion of toes on soles to irritation. Tendon Achilles jerk is present—both are diminished, poorer on right than left. Knee jerk is quicker and more active than normal, the left being more so than the right; but on account of the atrophy of the muscles there is very limited extension of leg. All movements are performed except dorsal extension of foot, but weaker and slower than normal. The muscles of the inner side of the plantar surface of the feet appear to be atrophied—more so on the right than on the left. There is fibrillary contraction. All muscles of the thigh show fibrillary contraction and are atrophied, the right more than the left. The right arm and leg are slightly weaker and more atrophied than the left. Speech is distinctly bulbar in character but clearer than on admission. Trouble swallowing, especially liquids. There are no clonus and sensory changes. The eyes show slight nystagmus on reacting the limit of conjugate movement, especially to right. There is some loss of capillarity. Vision and fields are normal.

DISCUSSION

Dr. B. Sachs, New York: There can be no question about the involvement of the central nervous system. The appearance of the tongue alone would necessarily place it in the category of cases that involve the bulb, and, as such, there would be very little difficulty in acceding to the diagnosis that it is a lateral sclerosis. The reflexes are present without being very much exaggerated and I have often felt that in case of amyotrophic lateral sclerosis as in spastic paraplegia a balance is reestablished between the two diseases. In this case a balance is established between the amounts of affection of the gray matter and the two systems of tracts. In amyotrophic lateral sclerosis much more of the gray matter than the white matter is involved. This case could very well be a combination of two things, that is, involvement of the peripheral nervous system together with lead intoxication, which diminishes the value of some of the symptoms which would ordinarily appear in a general amyotrophic lateral sclerosis.

Dr. M. Allen Starr, New York: I agree with Dr. Sachs in feeling that in this case we have the *evidence of a lesion* of the central nervous system, and am much more inclined to the diagnosis of amyotrophic lateral sclerosis with bulbar palsy than to lead neuritis or to lead poisoning. While we must admit that in the majority of cases of lead poisoning the effect of the lead is marked on the peripheral nerves, yet we must also admit that there is considerable effect on the central nervous system. Many cases are on record of autopsies following lead poisoning—notably those reported by Schulze in *Archiv. für Psychiatrie*, in which marked lesions of the anterior horn cells were found in connection with the lead palsy. In three severe cases of lead palsy under my care, involving both arms and legs, confining the individual to bed and putting them in a greater invalid state than the man exhibited by Dr. Mitchell, there were also marked cerebral symptoms, and in two cases severe headaches and in one very marked obscuration of mental action. It seems that were the degree of toxic effect sufficient we should also have the other symptoms of lead encephalopathy.

Case Presenting the Symptomatology of Paramyoclonus Multiplex

Dr. D. J. McCarthy, Philadelphia: The patient is a laboring man, aged 29, with a negative family history except that his father was strongly alcoholic. Since birth he has been affected with marked muscular activity of the right upper extremity. All the muscles are involved in irregular quick contractions causing the arm to move about in a jerky fashion. There is no atrophy or hypertrophy and no cranial nerve involvement; sensation is normal and station and gait good. There is some mental defect and it is probable that the motor restlessness manifested in the arm is of cerebral origin.

DISCUSSION

Dr. J. Ramsay Hunt, New York: I agree with Dr. McCarthy that the symptoms indicate a cerebral lesion. I am not inclined to call it even a symptomatic paramyoclonus multiplex. As I understand it, paramyoclonus multiplex is a disease in which muscles are represented and not movements. In other words, it is referable rather to the cellular processes of the spinal cord than the Rolandic area. Of the true paramyoclonus multiplex I have seen only two cases. One was in Europe and one was a case I have recorded and in which I had an opportunity of examining the central nervous system. In that case the patient showed while at rest absolutely no evidence of any involvement. As soon as the skin was exposed the muscles were seen to be jumping and vibrating in all directions independently of each other. That is, the supinator longus muscle would stand out in conjunction with the deltoid. I would be more inclined to regard this case as coming under the groups of congenital athetoid movements or tremor.

Dr. Morton Prince, Boston: I have always had the concept of paramyoclonus as involving the muscles rather than movements. The disease is very rare. A case which I once saw and which seemed to me to be a typical case of paramyoclonus, was a case of traumatic neurosis following an accident in which there was rhythmical contraction of the rectus femoris night and day. This case bore out the theory that paramyoclonus is a functional disease. The disease was apparently cured, at any rate the movements entirely ceased after manipulation which it would not seem possible could have any influence. The attending physician, without knowing what he would do, stretched the sciatic by the old method of doubling up the legs on the body, and almost immediately after that the movements ceased entirely.

Dr. L. Pierce Clark, New York: My experience in these cases of paramyoclonus has been entirely confined to those associated with epilepsy. I have reported ten cases of this type and think that the type of movement Dr. McCarthy's patient exhibited is not dissimilar to most of those cases reported. The point about it is that it has not generalized itself more and has kept itself more or less confined to the proximal muscles. The more one sees of these movements the more he agrees with Oppenheim that they belong to the myoclonus type and that the slight differentiation in the type of movement is really in the mind of the observer rather than in the trouble itself. These movements vary considerably in their range and character. Sometimes they may be fibrillary, sometimes single muscle effects, sometimes enough to give a locomotive effect.

Dr. McCarthy: The title was given as it was because I did not consider the case one of paramyoclonus multiplex. It was rather hard to present a title for the condition. The mere fact that the condition is congenital, whereas Friedreich's type is acquired, together with the type of symptomatic manifestation, practically excluded paramyoclonus multiplex.

(1) Athetosis and Astereognosis of Sudden Onset. (2) Athetosis and Astereognosis of Gradual Onset, Associated with Signs of Multiple Lesions

Dr. F. X. Dercum, Philadelphia: *Both cases are anomalous* and both are presented for purposes of diagnosis. The first patient is a man of about 35 who three years ago had headache and vomiting. In July, 1909, he became unable to use the left hand well and could not recognize objects with it. There is hyperesthesia and loss of sense of position up to the elbow, pressure sense is preserved. The hand also shows athetoid movements. There is slight involvement of the left foot, slight facial paresis and dilatation of the left pupil. The examination of the feces, urine and blood and the Wassermann test are negative.

The second patient is a woman above middle age who three years ago first noticed numbness of the feet and felt as if she had stockings on even when the feet were bare. She could not use the left hand properly and could not recognize objects with it; she also showed athetoid movements in both hands but more markedly in the right. There is hypesthesia to touch only. There is also an area on the left side from the sixth to the ninth rib which shows loss of sensation. Both cases suggest multiple lesions of the brain and the second case of the cord also.

DISCUSSION

Dr. Smith Ely Jelliffe, New York: It strikes me that the first case is a very interesting one of partial thalamic syndrome as described by Dejerine and Roussi, yet there is one characteristic symptom lacking, as there should be hemianesthesia, including loss of the deep sensibilities, muscle and joint sense. Dr. Dercum did not say anything about the tuning-fork test. The slight degree of hemiplegia here exists only in the facial muscles, practically disappearing in the other portions of the body, and conforms in large measure to the thalamic syndrome.

Dr. Morton Prince, Boston: In the first case there is similarity to the thalamic syndrome, but the patient unquestionably has tingling in the left hand. It is interesting, also, in this case to point out the marked disproportion between the loss of the sense of position, muscular sense and sense of localization and the loss of tactile sense.

Treatment of Spasticity by Resection of Posterior Spinal Roots

Dr. William G. Spiller and **Dr. Charles H. Frazier**, Philadelphia: The case presented is one in which extreme spasticity of the lower limbs had resulted from injury of the back. The motor power of the lower limbs had been excellent, but has been greatly interfered with by the spasticity. Sensation in these limbs had been normal. The patient had been unable to abduct the thighs, and had walked with extreme difficulty, supported by a cane and crutch, dragging the toes of one foot behind the heel of the other foot. He had been unable to put either heel on the ground because of the spasticity in the calf muscles. The second, third and fifth lumbar roots on each side were resected. Considerable pain was felt in the lower limbs following the operation, but after the degeneration of the cut roots became complete pain ceased. The operation was performed about three months ago. The man is now able to abduct the thighs and to flex and extend the legs on the thighs, almost in normal degree, but he still has some spasticity in the feet, as none of the sacral roots were cut. Sensation is lost in the distribution of the second and third lumbar roots of the right thigh, as given by Seiffer, and greatly impaired in the corresponding distribution of the left thigh, showing that anesthesia may be produced by division of two adjoining roots. The operation is permissible when spasticity is great and motor power is slightly or not at all diminished.

DISCUSSION

Dr. L. Pierce Clark, New York: Dr. Alfred Taylor and I have adopted this type of operation for the past few months. Our first operation was done about the middle of August on a patient with cerebral diplegia. The two following were for hemiplegia of the upper extremity. We presented all three cases before the Pediatric Society in New York in November. It is an interesting thing to note the genesis of this idea of posterior root section. One will find in the literature of twenty years ago the statement that this operation may bring about a betterment in the state of spastic palsy, but apparently no one had cared to take the risk of operation, not knowing which particular segments should be attacked to overcome the spastic state. The most careful analysis of the work was done by Dr. Fraenkel in 1909 and 1903, in which practically the whole theoretical matter was brought to the point of actually applying it on the clinical side. An interesting point was Dr. Fraenkel's having under his control the administration of stovaine in a case of diplegia at the Montifiore Home, where for a period of 45 minutes the patient was able to get up and walk about quite easily, something he had not been able to do before, and at the end of 45 minutes returned to his helpless state. That fact alone influenced me to ask Dr. Taylor to operate on some of my patients.

Division of the Auditory Nerve for Persistent Vertigo and Tinnitus

DR. CHARLES H. FRAZIER, Philadelphia: The patient was a woman of 56, who had suffered from tinnitus and vertigo for several years. There was some difficulty in separating the eighth nerve from the seventh, and although the seventh did not appear to have been injured there was for some time following the operation slight paralysis of the seventh nerve. In this case there was found a year after the operation to be very little relief from the tinnitus and vertigo. In all eight patients have been operated on by different surgeons. Three died as a result of the operation and only one has been much benefited.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, Held at Omaha, Neb., Dec. 20-21, 1909
(Continued from page 230)

Intestinal Suture

DR. ARTHUR E. BENJAMIN, Minneapolis: 1. Instruments or buttons for making an intestinal anastomosis have practically all been discarded for the suture, as there is less loss of tissue thereby. 2. The purpose of these instruments in the past was to facilitate making an anastomosis and to render the operation more safe. 3. The sutures are to prevent hemorrhage and to approximate like structures until a firm union has taken place, after which they should be absorbed or passed off into the intestines. 4. The side anastomosis is chosen because of the positive blood supply, its safety and ease of performance. 5. The preparation of the patient by careful selection of the diet, proper attention to waste-product elimination, stomach washings, etc., go a long way toward bringing success in these operations. 6. Pagenstecher's thread is largely used for the outside sutures in bowel work. As it is a foreign substance, it may provoke unnecessary adhesions and call for further operative procedures. 7. The linen thread can be used with safety for the inner line of suture, and, when properly placed, prevents hemorrhage or leakage and is soon eliminated. 8. This inner suture should be so placed as to prevent pursing or narrowing of the anastomotic opening. The through-and-through back lock stitch is suitable for this purpose. 9. The chromic catgut makes an admirable suture for the outer layer, and when used as a continuous Lembert suture, outside of the Pagenstecher lock-stitch, a safe and satisfactory union occurs. 10. Care should be observed in performing operations to avoid contamination. 11. The after-treatment of the case is very important. Food should not be given too early so as to avoid undue tension on the suture line.

President's Address: The Past, Present and Future of the Western Surgical and Gynecological Association

DR. A. L. WRIGHT, Carroll, Iowa: The conception of surgeons in the West uniting and forming an association for the sole purpose of discussing questions of interest to them only, originated with Dr. Milo B. Ward, a specialist doing abdominal surgery in Topeka, Kansas, who is reported to have said that to accomplish the purpose of its creation it was necessary that its membership should be limited; that it should be representative in character, and though its conditions of admission be exacting, they should not be used for a selfish motive. The intention was not to exclude meritorious candidates, but to prove their qualifications, and place a high value on the accumulative results of those associated and working together along scientific lines for a definite purpose, the increase of surgical knowledge and technic, the alleviation of suffering and prolongation of human life.

The initiative of the association was primarily the betterment of the members surgically and demanding from the public the respect and confidence their skill merited. This confidence in the ability of each other has done much to make it possible for the surgeon in the small town to relieve serious emergencies with minimum suffering and loss of life. Formerly the idea prevailed that special skill existed in the densely populated centers only. The tradition is rapidly passing away. Each and every man is better for having been a member of this association. His influence has aided materially in removing the evidence of weakness and in placing the organization on so firm a basis. If this standard be maintained we must not lose sight of the fact that the honest and conscientious surgeon is not born, but gains his knowledge, skill and dexterity by persistent, painstaking labor and constant application to a science more sacred than life itself. The qualifications of surgeons differ in many respects, depending on education, environment, personal experience and individuality. I cannot refrain from mentioning the influence of young men specializing in surgery before their mental faculties have fully expanded. This injures the mind and warps the intellect of the student by depriving him of adequate medical and literary training, so essential to the thoroughly equipped surgeon.

In order that the present position of the association be maintained, the credentials of each applicant for membership should be carefully examined and only those admitted who are known to be proficient in the science and art of surgery through long service, wide experience and close application to the principles underlying an almost exact science. An effort should be made each year to infuse new blood. This will add vigor, strength and a new working element that will maintain the association in its present position.

A Deceptive Form of Appendicitis in Women

DR. H. S. CROSSEN, St. Louis: There is an unusual form of appendicitis that proves very deceptive when occurring in women, because in its clinical characteristics it closely resembles adnexal disease. The mass is situated in the tubo-ovarian region, and, furthermore, it develops so gradually and with so little acute disturbance that it is suggestive of a new growth rather than inflammation. These deceptive features are fully accounted for by the pathologic changes found at operation. The exact pathologic condition is not clear, however, when first exposed, for the mass seems to be within the cecum and involving its wall. The cecum with the contained mass is movable and may be picked up and palpated between the examining fingers, and gives the impression of a new growth or other intracecal mass extending from the ileo-cecal valve to the lowest part of the cecum. The appendix is nowhere visible. Within the last thirteen months I have had two cases of this character and both of the patients came under my care with a diagnosis of tumor (new growth) presumably adnexal. In each case the mass, when exposed and directly palpated, was suggestive of a serious lesion of the cecum and ileocecal junction, possibly requiring extirpation of the cecum. The two cases were practically identical in their peculiar features, and they are good examples of a distinct class. That is interesting when considered from the standpoint of diagnosis or from the standpoint of treatment.

The points of special interest are as follows: 1. The location of the mass in the tubo-ovarian region instead of in the appendix region. In the first case, palpation about McBurney's point showed no trouble there, and in the second case simply the edge of the mass extended to the appendix region. 2. The scarcity of inflammatory symptoms. Each patient was ill several months and quite a mass had formed before any acute symptoms appeared, and when they did appear they were comparatively mild. 3. The apparent intracecal character of the mass was a striking feature and was due to the folding of the cecal wall about the chronically inflamed appendix. Because of the special relation of the appendix to the cecum or because of the chronicity of the low grade inflammation, or both, the infiltration and adhesions affected principally the wall of the cecum adjacent to the appendix. The affected appendix was buried in the overlapped cecal wall. This is what gave the feel of a mass within the cecum and affecting its wall, and it was this also which made it so difficult to locate and expose the appendix. This peculiarity is important from the standpoint of treatment for, unless carefully investigated, such a condition might be treated by extirpation of the cecum under the mistaken supposition that the mass was intracecal and malignant or tuberculous. This peculiarity helps to account, also, for the dislocation of the mass. As the cecum with its mass was fairly movable it naturally dropped downward into the tubo-ovarian region. Later, adhesions formed, fixing it in the abnormal location. 4. The slow absorption of the infiltration in the cecal wall, after removal of the affected appendix. In the first case, absorption of the infiltration in the wall of the cecum required nearly a year. In the second case in which pus was found the absorption of the infiltration was more quickly accomplished, requiring only about five months. Fortunately in both women the abdominal wall was thin and permitted of deep palpation; consequently the diminution of the cecal induration could be accurately followed. The fact that the condition described is likely to lead to mistakes, is illustrated by the following incidents: In an eastern museum a specimen labeled "Absence of the Appendix" showed on dissection the condition mentioned above, i. e., an overlapped cecal wall enfolding the inflamed appendix. Again, in a patient related to me, a cecum resected for supposed malignant disease, with fatal result, revealed on subsequent examination the condition above described, i. e., the supposed tumor consisted simply of the inflamed appendix surrounded and completely hidden by the cecal wall.

Surgical Treatment of Hyperthyroidism

Dr. W. D. Haines, *Cincinnati, Ohio*: After a review of the literature, embryology and anatomy of the thyroid gland, it may be stated that the syndrome called goiter is due to over-activity of the adrenals induced primarily by an excess of thyroglobulin in the blood. Discrepancies of opinion in the past have been due to lack of definite knowledge of the actual changes taking place in the gland at the time of observation. Laboratory study has shown a local hyperemia with increase in colloid and diminished staining reaction, but no gross changes in the glands in the first stage; this is followed by hyperplasia or the second stage. Imperfect alveoli lined with giant cells and great loss in colloid mark the third stage; while fibrosis, cell atrophy, sclerotic arterial walls, hemorrhage and cyst formation complete the final steps in destruction. Basing treatment on these findings, I advise diminishing the blood supply by ligating two or more of the thyroid arteries in preference to thyroidectomy in the management of cases of hyperthyroidism with moderately enlarged gland and active symptoms. In the operation for the removal of adenoma or partial thyroidectomy I keep within the thyroid capsule, thus avoiding injury to the parathyroids and recurrent laryngeals.

(To be continued)

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Financial Rewards of the Physician

That the doctor is not a good business man has passed into a proverb. The explanation that "no man with business instincts and the desire to make money would dream of entering the medical profession," is both unusual and suggestive. This statement appears in the December number of the *New York State Journal of Medicine* in an editorial entitled "The Economics of Medicine." The conclusion that there is "no money in medicine and that no great fortunes can be won in a medical career," while not new, is important.

After discussing the average income of members of the profession and the fact that the cost of living has increased at least 50 per cent. in the last twenty-five years, while the fees for medical service have remained the same, so that the "purchasing value of a dollar which the doctor now gets for a visit is just half what it was twenty-five years ago," the editor calls attention to the additional fact that preventive medicine has in late years greatly decreased the amount of remunerative work for a physician. Pasteurized milk and hygienically prepared foods have greatly decreased the summer diseases of children. Antitoxin and quarantine have greatly reduced diphtheria. Typhoid fever epidemics are prevented or are short-lived. Medical inspection of school children has reduced zymotic diseases. Much of the work being done by physicians in the prevention and extermination of diseases is done without hope or expectation of reward. Since this work is for the benefit of society, the New York editor is perfectly reasonable in saying: "We have a right to ask the public whether it has not also some obligation to the medical profession. Can society expect men to spend ten years in preparation for the most difficult and exacting of professions at a cost of at least $7,500.00 and then reap a reward which is but little more than the cost of the education would earn if put out at legal interest? Medical men have families to support, children to educate. They must pay for their homes and at least strive to provide for their old age. How is it to be done in present circumstances? . . . How can men live decently and honestly whose incomes are decreasing and whose expenses are increasing? . . . Stern necessity in our large cities is driving our men to illegal and dishonorable means of raising money, dishonorable because secret and clandestine. . . . The entire economics of medicine must be placed on a different basis if we are to make any real progress in combating the evils of commercialism."

After discussing the proposition to raise the fees of the general practitioner as a remedy, which proposition he fears would not be successful, "as physicians would not be loyal to each other," and deciding that the end can only be obtained through organization, the New York *Journal* concludes: "We cannot protect ourselves as individuals. We cannot as individuals ameliorate our present condition. Why should we hesitate to make use of the only agency which is a power in the world to-day if we use it justly and with righteousness? In the words of a great statesman, we are confronted with a condition and not a theory. We need a remedy lest worse things happen to us. Is there a remedy? Is it capable of application? Who will suggest a better remedy? How can any remedy be applied without organization? These are serious questions and require reflection. The opinion of the profession is desired. . . ."

These *are* serious questions. The views of the profession, not only in New York, but throughout the country, will be of great value. Carefully, fairly and dispassionately these questions must be discussed and settled by the medical profession of the present generation or the profession and the people of future generations will suffer. The physicians of the United States must unite to enlighten the public on the danger of ignorant, ill-trained and poverty-stricken physicians and on the duty of the public to support and encourage, both legally and economically, a medical profession which can afford to be disinterested, unselfish and philanthropic. If this is not done, the next decade will see the standard of the medical profession lowered simply through force of economic pressure. The danger and the loss from such a change will fall far more heavily on the public than on the profession. It is the duty of far-sighted physicians, however, to sound a warning and to lead the way in enlightening the public.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
Bowling Green, Kentucky

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—First Weekly Meeting

General Subject for the Month: Surgery of the Liver and Gall Tract

Anatomy of Liver and Gall Tract

Liver: Situation, shape, dimensions, surface markings. Surfaces, fissures, important relations. Blood vessels, nerves, lymphatics.

Gall-Bladder: Shape, size, situation. Fundus, body, neck. Important relations. Microscopic anatomy. Cystic duct. Hepatic duct. Common duct, length, portions, size, relations. Relation of ducts to each other and to surrounding structures. Ampulla of Vater. Blood and nerve supply of bile passages.

Lymphatic Vessels and Glands.

Physiology of Liver and Gall Bladder

Formation of Bile: Quantity, uses in normal digestion, reabsorption of bile. Function of gall-bladder.

Book Notices

Proceedings of the Third Annual Conference of the American Association of Medical Milk Commissions. [Secretary, Otto P. Geier, M.D., 124 Garfield Place, Cincinnati.] 1909. Stiff covers. Pp. 142.

In the report of the Atlantic City meeting of 1909 of the American Association of Medical Milk Commissions, a great amount of valuable information in reference to milk production is compiled. There are now, according to this report, 56 medical milk commissions in the United States, and these represent 22 states. Out of these 22 states only 3 protect the name "certified" as applied to milk of high standard. These states are New York, New Jersey and Kentucky. Attention is called to the necessity of other states following this example. Reports of the various milk commissions now in operation were read at the meeting. One of the points emphasized was that inspected milk, by which terms a second grade of milk is understood, should be produced and the sale encouraged. It has been the experience of many milk commissions that the general milk supply of a community is improved by the establishment of a milk commission. In one of the reports it is stated that the physicians are not interested in the production of certified milk. This not infrequent state of affairs is a great hindrance to the success of milk commissions. A similar statement is made in regard to the daily press, which is usually not willing to give space to a matter of such importance as a pure milk supply.

In a paper by Joseph S. Evans on "The Present Status of Commercial Pasteurization of Milk," the author says, "As to pasteurized milk producing scurvy, rickets, etc., that is practically ancient history." Sane views on pasteurization, like the one quoted, should be more frequent.

The chemical requirements of certified milk are discussed. We miss the adoption of the Hart test for proteids, which is simple, accurate, and suitable for routine examinations. This test should be generally practiced. In the paper by Francis H. Slack on the bacteriologic methods of milk examinations, stress is laid on the importance of realizing that the bacteria in milk are of various nature and by proper temperature of incubation fecal bacteria can be differentiated from air bacteria in a rough way. It seems, however, that the statement of numbers obtained at 37° after two days being equal to the number obtained at 27° after three days and to the number obtained at 22° after five days has not met general assent. Usually a higher number is obtained at 22° after three days than at 37° after two days, and the lower temperature gives a better differential count. The use of Petri dishes with porous covers has not become general, as the porous covers interfere with the counting of the colonies.

In the report of certified milk contests by Clarence B. Lane, a table gives the records of the milks exhibited by 25 dairies at the Cincinnati exhibition (1909). The numbers of bacteria are from "no growth" to 440,000 per cubic centimeter. It is amazing to find a milk which shows no bacterial growth from one cubic centimeter!

Professor Conn presents a very interesting paper on the character of milk in small communities in which he calls attention to the rather surprising fact that the milk supply in small communities is not as good as in large cities. Professor Park states in a paper that the number of deaths due to the bovine tubercle bacillus in the city of New York is 1.6 per cent of the total number of deaths from tuberculosis. Such work is of special value at present, since the discussion about the value of eliminating all tuberculous cattle is carried on with much heat. The general impression is, however, that even with such small percentage of deaths from bovine tuberculosis—and the last word has not been said on this point—that tuberculous cattle must go. The educational value of showing the farmer that cattle with tuberculosis should be eliminated is not to be overlooked.

The report finally gives a list of all the milk commissions now existing in the United States, and the members.

The present status of the milk problem is well presented in this book and the preceding. The important points of production of certified, inspected and pasteurized milk are treated and the beneficial influence of medical milk commissions on the general milk-supply and on the relation of these commissions on infantile death-rates are emphasized and deserve close attention by the public at large, and especially by the practicing physician.

A Manual of the Working Methods and Standards for the Use of the Medical Milk Commission. Paper. Pp. 24. Compiled by the American Association of Medical Milk Commissions. [Secretary, Otto P. Geier, M.D., 124 Garfield Place, Cincinnati.] 1909.

The manual explains the purposes of inspection and examination of dairies producing certified milk, gives the standards adopted for chemical and bacteriologic examinations of certified milk, and an outline of the methods by which medical examinations of employees in certified milk dairies should be carried on. Other parts of this manual are reprints of various articles in the report of the proceedings of the Association of Medical Milk Commissions reviewed below.

Gynecology and Abdominal Surgery. Edited by Howard A. Kelly, M.D., F.R.C.S. (Hon. Edin.). Professor of Gynecologic Surgery at Johns Hopkins University, Baltimore, and Charles. P. Noble, M.D., S.D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia. Cloth. Pp. 862, with illustrations. Price, $8. Vol. II. Philadelphia: W. B. Saunders Co., 1908.

This work, embracing as it does not only all those operations which are peculiar to women, but also all those pertaining to the abdomen in general, including hernia and also diseases of the breast, marks a wide departure from all previous works on gynecology. It also breaks down that artificial barrier which was raised in an attempt to separate gynecology from general surgery. Of the thirty authors, all but three are from this country and in the list are found the names of some of our best general and special surgeons. The work contains a number of good features which are out of the ordinary. The chapter on "The Pathology of the Reproductive Organs" is one of these. In this chapter is considered the pathology of all of those organs in a consecutive manner. This not only saves much repetition but adds to clearness, as the pathology of one organ is often but an extension by continuity of that of another organ. The necessity for doing more than one operation at one sitting is a common one and a chapter has therefore been devoted to "Combined Gynecologic Operations" in which is considered the character of the various operations which may be combined or advantageously performed at the same time, together with the indications, contraindications, etc. The chapter on "Diseases of the Breast" is particularly good, especially that part relating to benign growths, while that on "Hernia in the Male," as perhaps might be expected, leaves something to be desired. Concerning the illustrations, which are numerous, it is sufficient to say that the most of them are by those master artists, Becker and Brödel.

Introduction to Practical Chemistry. For Medical, Dental, and General Students. By A. M. Kellas, B.Sc., Ph.D., Lecturer on Chemistry at the Middlesex Hospital Medical School. Cloth. Pp. 249. Price, $1.35. New York: University Press, 1909.

As the title page has it, this is an "introduction to practical chemistry for medical, dental and general students, specially adapted to meet the requirements of the conjoint board's examination of the Royal Colleges of Physicians and Surgeons . . . etc." In other words, the book is intended to afford the student a means of a rapid general review of elementary chemistry, such as would be required of candidates for a medical degree in England.

The contents are divided into the five following parts: "I, Simple Preparations of Non-metallic Elements and Compounds;" "II, Preparations of Typical Compounds of the Metals;" "III, Tests for Electro-positive Radicles;" "IV, (a) Identification of Acid Radicles, (b) Identification of Metallic Oxids and Hydroxids;" "V, Qualitative Analysis."

Only a small part of the book is devoted to the teaching of general inorganic chemistry, and still less space is given to chemical theory, the main part of the book being taken up in teaching qualitative analysis. This is done by the help of extensive tables containing the properties and general reactions of the metals, acids and bases, usually met with in qualitative analysis. This device, presenting the facts in such a form as to enable students to make a rapid review of the most important properties and tests of the more common metals, acids and bases, is the only apparent advantage of this book over the many existing publications of its kind.

Medicolegal

Privileged Communications with Reference to Causes of Injury

The United States Circuit Court of Appeals, Eighth Circuit, says, in Missouri Pacific Railway Co. vs. Castle (172 Fed. R., 841), a personal injury case brought by the latter party, that it is obvious that the admissibility of evidence sought to be excluded under section 333 of the Civil Code of Nebraska, must be determined by the facts in each case. That statute provides that no physician, surgeon, etc., shall be allowed, in giving testimony, to disclose any confidential communication, properly intrusted to him in his professional capacity, and necessary and proper to enable him to discharge the functions of his office according to the usual course of practice.

In the case of Union Pacific Railway Co. vs. Thomas (152 Fed. R., 365), this court said: "The essential elements of a privileged or a confidential communication under the Nebraska statute are: (1) The relation of physician and patient; (2) information acquired during this relation; and (3) the necessity and propriety of the information to enable the physician to treat the patient skillfully in his professional capacity." In that case the injuries were internal. From what particular disease the plaintiff was suffering, and what was the proximate cause thereof, was in doubt. Under such a state of facts answers to questions as to how the plaintiff was injured, and as to what physical injuries she received were clearly necessary to enable the physician to prescribe, and hence were privileged.

In the case here before the court there was beyond question a crushed right leg about four inches above the ankle. The injury beyond question was caused by one of the defendant's cars passing over the plaintiff's leg. Whether the injury was caused by the plaintiff's or the defendant's negligence was the pivotal question in the case. It was impossible to imagine anything that the injured person could say to the physician in reference to the cause of the injury that would in any way throw any light on the manner of treating the same. How the leg came to be crushed was for the purpose of treatment absolutely immaterial. What the plaintiff told the physician about it was of no assistance whatever to enable him to discharge the functions of his office; and, it is held, was not privileged.

The statute is in derogation of the common law, and often excludes the best evidence. It should not, therefore, be extended to matters of evidence not coming clearly within its provisions, as the object and purpose of all trials is the development of the true facts in each case. The court finds no cases which under similar circumstances have held inadmissible testimony such as was offered in the present case, namely, that the plaintiff told the physician that his injury was sustained by having his foot slip off the brakebeam and onto the "T" rail of the track and having one of the car wheels pass over his foot. But the court finds a number of decisions which hold such evidence to be admissible under similar or like statutes.

Letter Rendering Sister Liable for Physician's Services—Right of Physician Conducting Hospital with Layman to Sue

The Supreme Court of Colorado says that the case of Hall vs. Allen (104 Pac. R., 489), was brought by the latter party against a sister of a patient who had been treated in a hospital operated by plaintiff, a physician, and one Waggoner, who was not a physician, to recover for medical and surgical services rendered to such patient, the defendant's brother. The defendant had written to the plaintiff physician a letter in which she expressed solicitude about the condition of her brother, asked to be let known every day or two just how he was doing, stating: "And we will gladly pay all expense. . . . All of his expenses will be paid later on and we want him to have everything to make him more comfortable," etc. Taken into consideration with the surrounding circumstances, the court is of the opinion that the letter authorized the medical and surgical services from that date on so as to make the payment thereof an original promise on the defendant sister's part, the brother being a young man of 25 years, without means, who was seriously injured while away from his people.

It was contended that there was a defect of parties plaintiff; that error was committed in refusing to allow it to be shown that a partnership existed between the plaintiff and said Waggoner, who had no right to practice medicine, and in rejecting the partnership contract as evidence to establish those facts, but with this contention the court cannot agree. The partnership contract offered concerned the management of the hospital, and provided that the plaintiff, together with one other physician employed by the firm, should perform the medical and surgical work, and also provided for the disposition of all funds received, including those for the services rendered by the physicians. The services in question were the professional services rendered by the plaintiff in his professional capacity, and such an action could not lie in a partnership name, for, so far as Mr. Waggoner was concerned, he was not a physician, and did not attempt to practice or render such services. The Colorado statute prohibits any person from practicing medicine without a license.

It was immaterial to the defendant what contractual relation existed between the plaintiff and Mr. Waggoner, or what the plaintiff should do with moneys received for his services when procured. Neither did it concern the defendant, when suit was brought against her for services rendered by him in his professional capacity, what became of the money, where there was no claim that he assigned or otherwise disposed of it other than by a contract showing that he had a partner in the business covering the operation of a hospital, including the receipts from his professional services. The correct test of when a party is a necessary one, and when a defendant can raise the objection of a defect of parties, is where it appears that some other person than the plaintiff has such a legal interest in the obligation sued on that a recovery by the plaintiff would not preclude its being enforced by such other party and the defendant being thereby subjected to the risk of another suit on the same subject.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

January 8

1 Protective Appendicitis. R. T. Morris, New York.
2 What may be Done to Improve the Hygiene of the City Dweller? S. A. Knopf, New York.
3 *Death in Epilepsy. J. F. Munson, Sonyea, N. Y.
4 *Observations Regarding the Finger Tone. G. O. Williams, Greene, N. Y.
5 Contact Infection in Amebiasis. W. Allan, Charlotte, N. C.
6 *Puerperal Septicemia Treated with Diphtheria Antitoxin—Recovery. E. M. Deacon, Birdsboro, Pa.

3. **Death in Epilepsy.**—While the duration of life in epilepsy may be several years, the net result, according to Munson, is death earlier than among normal persons. The causes of death are largely associated with the disease itself, and are either pulmonary or purely epileptic in character. Pulmonary edema is frequent in epileptics; exposure while helpless may cause lung complications, and frequent congestions and edema make the lungs susceptible to germ action. Death is always at hand during seizures, from traumatism, suffocation, or without any apparent cause. Epileptics will always show some signs of seizure after death. The epileptic should never be left to himself or allowed to walk out alone. Patients have fallen by the roadside and died from suffocation due to position, or may die in bed at night from the same cause.

4. **The Finger Tone.**—Finger tone is the term applied by Williams to the sound that may be heard with a phonendoscope by placing the end of the finger on the diaphragm while listening. This tone, says Williams, has something to do with the circulation. It may be heard on any portion of the body, is modified by pathologic conditions, is louder in the male than in the female, and in adult age than in youth, is absent in collapse, and in exposure to cold. A diminished

arterial current reduces the tone. Local arterial obstruction stops the tone. As to its significance, Williams says that an overloud tone in middle or early life should be regarded with suspicion. Overloud tones mean venous obstruction.

6. **Diphtheria Antitoxin in Puerperal Septicemia.**—Deacon reports a case of puerperal septicemia in which infection occurred somewhat late, and the temperature and general symptoms became modified after the use of large doses of diphtheria antitoxin. The patient recovered. The woman was profoundly septic when the antitoxin was given, and the effect of the serum was very prompt.

New York Medical Journal

January 8

7 *Treatment of Pneumonia. F. S. Meara, New York.
8 The Traumatic Neurosis—A Psychologic Mosaic. P. Bailey, New York.
9 *Experimental Studies on the Etiology of Acute Poliomyelitis. I. Strauss, and F. M. Huntoon, New York.
10 Physiologic and Clinical Results of, and Indications for, Gastroenterostomy. S. Harris, Mobile, Ala.
11 *Two Signs of Diagnostic Value; one in Cholelithiasis, the other in Incipient Pulmonary Tuberculosis. R. Abraham, New York.
12 Trachoma. L. J. Goldbach, Baltimore.
13 Ruptured Triceps due to Direct Violence. D. P. Penhallow, Boston.
14 A Duodenal Tube. M. Gross, New York.
15 *The Avery Evacuator. J. W. Avery, New York.

7. This paper will be abstracted shortly in the Department of Therapeutics.

9. **Etiology of Acute Poliomyelitis.**—Strauss and Huntoon made a very careful and thorough experimental investigation into the etiology of acute poliomyelitis, basing their work on the organs from a fatal case sent to them for study. They found that acute poliomyelitis can be produced in a *Macacus rhesus* by intraperitoneal inoculation of the cord of a fatal human case. Unsuccessful attempts to transfer acute poliomyelitis from one monkey to another by intraperitoneal inoculation seem to warrant the assumption that successful subinoculation by this method is an uncertain procedure. Strauss and Huntoon found that the cerebrospinal fluid of acute cases does not contain the virus in an infective state, and therefore the reported bacterial findings in the cerebrospinal fluid are either contaminations, or secondary invaders. When the disease is clinically recognizable, namely, after the onset of the paralysis, the virus is probably no longer present in the blood or at least cannot be used to produce infection in the monkey by intraperitoneal and intradural inoculation. Histologically, the lesion in poliomyelitis is very similar to that in rabies. Furthermore, there occurs in rabies a type of ascending paralysis which is clinically identical with the ascending paralysis (Landry type) of acute poliomyelitis. The authors claim that acute poliomyelitis must now be classed among the infectious diseases. The only objection which can be made to this conclusion is that the disease may be of toxic origin. However, the lesions which the central nervous system present both in many and monkeys are of an inflammatory rather than of a purely degenerative nature such as toxins (diphtheria and tetanus) produce. Moreover, were the disease due to a toxemia, it would be difficult to explain the occurrence of a long and variable period of incubation after intraperitoneal inoculation.

11. **Two Signs of Diagnostic Value.**—The sign which Abrahams has never failed to find in the many instances of gallstone disease which have come to his notice consists in a painful point midway between the umbilicus and the costal cartilage of the ninth rib in the right hypochondriac region. The method of eliciting it is as follows: Place the patient in the recumbent position with the arms and legs extended. Ascertain a point midway between the umbilicus and the ninth costal cartilage, then with a sudden thrust press the index and middle fingers of the right hand into that point. The effect on the patient is like an electric shock; there is either a grimace on the face denoting suffering or a quick involuntary jump of the abdomen as if it were struck with a pointed instrument. As often as the finger thrust is repeated just as often is the painful response obtained. In an acute attack with a diffuse area of hyperasthenia, the midway point mentioned is the point of maximum pain. In chronic cases the painful point is present at all times while the whole area around it may enjoy freedom from sensitiveness. The absence of this point after its repeated presence in a case long under observation argues in favor of a gall-bladder which has got rid of the stones.

The diagnostic sign in incipient pulmonary tuberculosis is designated "the cutaneous temperature." A reliable clinical thermometer is placed at the supraclavicular space of one side, covering the bulb snugly and completely with folds of skin. At the end of four or five minutes the thermometer is removed and the temperature noted. The same is done at the other supraclavicular space and then the temperatures compared. In case both apices are involved the temperature obtained in both supraclavicular spaces will be higher than the axillary temperature, and if one apex is more affected than the other, the cutaneous temperature at that apical region will yield a higher temperature.

15. **Avery Evacuator.**—The underlying principle of Avery's evacuator is that of suction produced by a vacuum, which is maintained by some form of pump. This latter may be operated either by hand or electricity. Avery has found this apparatus of especial value in operating on adenoids and tonsils under general anesthesia. Here the severe and rapid hemorrhage tempts and often compels the surgeon to undue haste, with the result of too little tissue being removed, or too much, including perhaps a tonsillar pillar or part of the soft palate and uvula.

Boston Medical and Surgical Journal

January 6

16 *Tuberculin Treatment of Tuberculosis Dispensary Patients. J. B. Hawes and C. Floyd, Boston.
17 *Therapeutic Administration of Tuberculin in Surgical Tuberculosis. H. F. Hartwell and E. C. Streeter, Boston.
18 Obstructive Calculous Anuria. F. S. Watson, Boston.
19 Influence of Resection of the Kidney on the Function of the Organ; (A) when the kidney wound is closed by sutures; (B) when the kidney wound is drained; (a) by a Rubber Tube; (b) by Gauze. J. H. Cunningham, Boston.

16. **Tuberculin Treatment of Dispensary Patients.**—Out of 143 patients with various forms of tuberculosis treated with tuberculin by Hawes and Floyd during the past four years, 19 have *died*, 16 have shown no improvement, while 108 have been benefited to a greater or less degree. In no instance have the authors been able to see that tuberculin has done the slightest harm; reactions have been rare and invariably of a very mild type. In incipient pulmonary tuberculosis, especially in children, the authors say that tuberculin is a factor in increasing body resistance and in maintaining this resistance so as to prevent relapses. In more advanced pulmonary disease tuberculin will alleviate distressing symptoms, prolong life, and occasionally help to arrest the process. In localized or "surgical" tuberculosis tuberculin has a marked beneficial effect. Its administration should always be combined with hygienic outdoor treatment, and in the vast majority of instances should be subservient to this. Dispensary patients can be treated with tuberculin not only with perfect safety, but with benefit, providing that there is a close personal cooperation between the patient and the physician.

17. **Tuberculin in Surgical Tuberculosis.**—Hartwell and Streeter believe that a radical excision is the procedure of choice in the majority of cases on account of the great saving of time and the immediate removal of infected tissue which may be a possible menace. They suggest that tuberculin may be resorted to when the operation is contraindicated or refused, and suggest its employment as an adjuvant to operation. As such, they would use it to prevent recurrence after operation. In extensive involvement of cervical glands they would remove the most prominent gland masses, leaving the smaller nodes to be taken care of by tuberculin. It may also be employed to take away periglandular infiltration so that the hard and freely movable glands can be more easily shelled out through an open incision.

Lancet-Clinic, Cincinnati

January 1

20 *Tuberculous Toxemia in Surgery. A. C. Wiener, Chicago.
21 *Pfannenstiel's Incision: Report of Cases. H. O. Walker, Detroit, Mich.

22 *Reflex Neuroses Arising from Ocular and Nasal Abnormalities. J. A. Stucky, Lexington, Ky.
23 *What Women Should Know in Regard to Uterine Cancer. J. H. Carstens, Detroit.

20. Abstracted in The Journal, Oct. 30, 1909, p. 1505.

21. Abstracted in The Journal, Nov. 13, 1909, p. 1677.

22, 23. Abstracted in The Journal, Nov. 20, 1909, p. 1770.

Medical Fortnightly, St. Louis

December 25

24 The Problem of a Federal Department of Health. L. H. Montgomery, Chicago.
25 Need for Education on the Questions of Sex and Venereal Diseases and the Problems Involved. M. Duggan, San Antonio, Tex.
26 Pain. W. F. Waugh, Chicago.

Virginia Medical Semi-Monthly, Richmond

December 24

27 *Etiology, Symptomatology and Palliative Treatment of Hypertrophied Prostate. J. S. Niles, Carbondale, Pa.
28 Pellagra—Its Etiology, Pathology, Diagnosis and Treatment. C. W. G. Rohrer, Baltimore.
29 *Sterilization of Habitual Criminals. C. V. Carrington, Richmond, Va.
30 Clinical Aspect of Enlarged Tonsils—Résumé of 850 Operations. J. J. Richardson, Washington, D. C.
31 *Ocular Manifestations Associated with Intracranial Lesions Complicating Aural Diseases. S. M. Smith, Philadelphia.
32 Surgical Treatment of Hepatic Ascites. W. L. Peple, Richmond, Va.
33 Tax Reform in Virginia. G. Bryan, Richmond.

27. **Palliative Treatment of Hypertrophied Prostate.**—The object of Niles' paper is: 1. By discussion to become more positive concerning the etiologic factor, then to enlarge on the prophylactic attention, and thus prevent or lessen the enlargement of this gland. 2. By discriminating observation of the earlier symptoms, to inaugurate prophylactic measures earlier and thus retard urinary obstruction. 3. To gain knowledge of palliative treatments that we may obtain the greatest good from these methods.

The following summary is offered in conclusion: 1. The inflammatory theory of the origin of hypertrophy of the prostate is the one most feasible. 2. Prophylactic treatment in certain cases may be used successfully to prevent an acute engorgement of the prostate, and thus prohibit permanent retention of urine.

29. Abstracted in The Journal, Oct. 23, 1909, p. 1420.

31. Abstracted in The Journal, Nov. 6, 1909, p. 1588.

Northwestern Lancet, Minneapolis

December 15

34 Tumors of the Cecum. W. J. Mayo, Rochester, Minn.
35 Diagnosis of Smallpox. J. M. Armstrong, St. Paul.
36 The Tuberculosis Problem. J. W. Bell, Minneapolis.
37 Plea for the Early Diagnosis and Early Surgical Treatment of Cancer. E. H. Beckman, Rochester, Minn.

Colorado Medicine, Denver

December

38 Diagnostic Value of Distention of the Renal Pelvis with Fluid Through the Urethral Catheter. L. Freeman, Denver.
39 Surgical Treatment of Prostatic Hypertrophy. F. N. Cochems, Salida, Colo.

New York State Journal of Medicine, New York

December

40 *Infectiousness and Contagiosity of Acute Poliomyelitis. LeG. Kerr, New York.
41 Cancer of the Rectum. N. Jacobson, Syracuse.
42 Diseases of the Eye which the General Practitioner Should Know. F. H. Koyle, Hornell.
43 Injury to the Eyes from Exposure to Intense Light of Short Wave Length. W. T. Miller, Schenectady.
44 Case of Amebic Dysentery. H. W. Carey, Troy.
45 Study of the Peritoneum. T. L. Deaver, Syracuse.
46 Myelocytosis. A. L. Benedict, Buffalo.
47 Scarlet Fever in Country Practice. J. J. Montgomery, Luzerne.
48 Acute Iodothyroid Toxemia. F. S. Stannard, Troy.
49 Personal Experiences with Diseases of the Breast. J. W. Eddy, Oswego.

40. **Acute Poliomyelitis.**—From a study of 65 cases, Kerr is firmly convinced that in acute poliomyelitis, we are dealing with a hematogenic infection of a microbic agent of low virulence. That this infection is engrafted on a tissue susceptibility which is acquired through the agencies of local malnutrition, exhaustion and nerve impairment, and that this local condition is dependent on the two factors of functional activity and a general state of malnutrition, and that the most favoring factor of all is an individual susceptibility over which we have absolutely no control.

Journal Indiana State Medical Association, Fort Wayne

December

50 Foundations of Specialism. S. Coulter, LaFayette.
51 Analysis of Psychotherapy. B. F. Hutchins, Indianapolis.
52 The Psychic Element in the Causation of Disease. F. B. Wynn, Indianapolis.
53 Syphilis of the Nervous System. G. Van Sweringen, Fort Wayne.
54 Ten Cases of Brain Syphilis. C. F. Neu, Indianapolis.
55 Team Work, from the Standpoint of the Secretary. J. C. Wallace, Fort Wayne.

American Medicine, Burlington, Vt.

December

56 Résumé of the Progress of Surgery in Benign Conditions of the Stomach and Duodenum. W. A. Harroun, Kansas City, Mo.
57 *The Correct Solution of the Eye-Strain Problem—Where to Look for it. N. Roberts, Washington, D. C.
58 *When shall we Terminate Pregnancy? W. C. Schoenijahn, Brooklyn.
59 Frontal Sinusitis, Acute and Chronic, with a Plea for Early Diagnosis of Acute Cases. J. A. MacIsaac, New York.
60 Cervicobrachial Herpes Zoster. A Gordon, Philadelphia.
61 Diet in Tuberculosis. J. A. Cutter, New York.
62 Infection and Immunity: A Suggestion. W. C. Abbott, Chicago.

57. **Correct Solution of Eyestrain.**—Roberts claims that in many, perhaps most cases, a single correction is not enough for a person whose eyes have rebelled under the strain of excessive and unavoidable near work. The functions of accommodation and convergence are being inordinately overworked. In any given case the stress should be reduced to such an extent that it will cause no further harm, local or remote, to the organism. Present-day measures are not adequate to this end, and the profession, to increase its power for good, should bury its dissensions, call in all available aid, and cooperatively study the problem in all its aspects. A sufficient number of medical men, says Roberts, should qualify themselves and take up the work of bringing the eyes of the race to their highest efficiency.

58. **Termination of Pregnancy.**—No one, says Schoenijahn, should assume such a responsibility as the performance of abortion on his own judgment alone. The case should be submitted to one or several medical men, if possible, first to specialists in the particular conditions existing, then to the obstetrician. The outcome of consultation should be recorded, signed by the consultants, and preserved by whoever is to perform the operation. It might be well, also, inasmuch as in our enlightened age malpractice suits are not uncommon, to acquire the written consent, properly witnessed, of both husband and patient. In the event of untoward results such documents might prove invaluable.

Northwest Medicine, Seattle, Wash.

December

63 Prophylaxis of Pulmonary Tuberculosis. E. A. Pierce, Portland, Ore.
64 Early Diagnosis of Pulmonary Tuberculosis by the Roentgen Ray. H. R. Nelson, Victoria, B. C.
65 A Layman's View of the Tuberculosis Problem. A. L. Mills, Portland, Ore.
66 Vaccines as Therapeutic Agents. R. C. Matson, Portland, Ore.
67 Tuberculosis of the Kidney with Special Reference to Diagnosis and Treatment. G. S. Peterkin, Seattle, Wash.
68 *Resection of the Sciatic Nerve; Neuroplasty; End-Results; K. A. J. MacKenzie, Portlend, Ore.

68. Abstracted in The Journal, July 31, 1909, p. 408.

Laryngoscope, St. Louis

December

69 On So-Called Multiple Osteomata of the Tracheal Mucous Membrane. H. S. Muckleston, Montreal.
70 The Nose and Nasopharynx in Infants and Young Children. J. M. Ingersoll, Cleveland.
71 *A Modified Mikulicz Operation, whereby the Entire Lower Turbinate is Saved in Intranasal Operations on the Antrum of Highmore. G. Sluder, St. Louis.
72 Lupus of the Nose. D. A. Vanderhoof, Rockford, Ill.
73 Septicemia Following Submucous Resection of the Nasal Septum: One Death; One Recovery. H. Hays, New York.
74 Staphylococcus Rhinitis as a Cause of Folliculitis Exulcerans Serpiginosa Nasi. T. J. Reardon, Boston.
75 *Pathology and Treatment of Recurrent Quinsy. R. C. Myles, New York.
76 Removal of Two Pharyngeal Tumors (Fibroma and Lymphoma) with Ligation of the External Carotid in One Case. F. P. Calhoun, Atlanta.
77 Voluntary Aspiration of a Foreign Body into the Bronchi; Removal by Bronchoscopy. C. Jackson, Pittsburg.
78 The Intranasal Frontal Sinus Operation: The Accessibility of the Sinus: The Prognosis of the Operation. T. C. Worthington, Baltimore.

71. **Maxillary Antrum Operation.**—Sluder's procedure consists in cutting the lower turbinate from the lateral wall, as

far back as its posterior fourth and fifth, by means of scissors. The detached part is then pushed well upward, while the operator removes the lateral wall of the lower meatus. The detached part of the lower turbinate is next pushed down into the lower meatus, while he removes as much of the lateral wall of the middle meatus as he wishes. In this manner it is possible to remove the entire inner wall of the antrum as far forward as the nasal process of the maxilla. There will still remain the ridge on the nasal process for the reattachment of the lower turbinate, which is now replaced in its original position, carefully apposing the cut surfaces at the anterior end. Often the parts may be held in position by means of a little cotton or gauze. If this is found to be insufficient, one or two stitches suffice to hold everything perfectly in place.

In 53 cases he has never seen the bone fail to unite, or undergo degeneration. No subsequent hypertrophy has been observed. Some of his cases are of four years' standing. The replaced turbinate in no wise interferes with the drainage or with the final good result. It does away absolutely with any subsequent drying. This is an especial advantage in cases both of medium and wide nostrils, where some drying is sure to follow any removal of the turbinate. It is especially advantageous also in cases in which the middle turbinate must be or has been removed to drain a frontal or ethmoidal empyema. In these cases it conserves the heat and moisture functions of the nose, which would be lost were both turbinates removed. In atrophic rhinitis it is especially indicated.

In noses whose caliber is a little too wide or a little too narrow, the angle of inclination of the turbinate may be altered in reattaching it, making it less acute for the former and more acute for the latter. This is readily done by tilting the bone upward by a pack of gauze or cotton put underneath its body after it has been sewed in place, or by pressing the body slightly outward by a pack between it and the septum. These packs must be continued throughout the healing, the bone afterward remaining in its new position.

75. **Recurrent Quinsy.**—The most satisfactory operative procedure, according to Myles, consists of dissecting the tonsils from the pillars with sharp, properly shaped knives, leaving enough of the capsule around the outlet of the tonsil cavity to prevent adhesion across the space between the pillars, then removing the tonsil as deeply as possible with the traction forceps and snare. After this, remove all of the median wall of the cavity that may be represented by the basic capsule of the tonsil. The fistulous tracts that lead from the main cavity can be incised with a curved bistoury as far as may be safe. In the cases in which the diverticulum extended down to the hyoid fossæ, a seton is used to cut through gradually and to convert the fistula into an open tract.

American Journal of Urology, New York

December

79 Bladder Hemorrhage Treatment. C. G. Cumston, Boston.
80 Removal of Wax Candle from Bladder by Means of Benzin.
81 H. J. Scherck, St. Louis.
82 and Bladder. R. H. Greene, New York.

Old Dominion Journal of Medicine and Surgery, Richmond

December

83 The State Medical Society. V. V. Anderson, Lynchburg, Va.
84 Angina Pectoris. F. Forchheimer, Cincinnati.
85 *Epidemic of Probable Paratyphoid Fever. A. W. Freeman, and H. T. Marshall, Charlottesville, Va.
86 Repair of the Torn Perineum. J. E. Cannaday, Charleston, W. Va.
87 A Means for Better Protection of our Communities from Disease, and by which our Aged Professional Brother can be Assisted. E. A. DeBordenave, Franklin, Va.

85. **Paratyphoid Fever.**—Freeman and Marshall believe that there prevailed at Weyer's Cave, Virginia, during the summer of 1909, an epidemic of a disease which was probably paratyphoid. They believe further that the epidemiologic studies failed to give any reasonable explanation as to the means of transmission of the disease, and that this condition was peculiar to the epidemic in question, as further studies in the same neighborhood disclosed the prevalence of a disease which was clinically and bacteriologically true typhoid.

Bulletin American Academy of Medicine, Easton, Pa.

December

88 *Congregational Practice. A. L. Benedict, Buffalo.
89 *Contract Practice. C. S. Sheldon, Madison, Wis.
90 *Contract Practice: Its Ethical Bearings and Relations to the Lodge and Industrial Insurance. H. T. Partree, Eatontown, N. J.
91 *Contract Practice in Rhode Island. G. S. Mathews, Providence.
92 *Physicians in Contract Practice with Mutual Benevolent Societies. A. Ravogli, Cincinnati.
93 *A Defence of Contract Practice. J. C. McManemin, Atlantic City, N. J.
94 *Why not Make Contract Practice Universal? W. Hutchinson, New York.
95 *Division of the Fee and Commissions to Physicians. A. A. Eshner, Philadelphia.
96 *Payment of Commissions by Specialist to General Practitioner. E. G. Edwards, La Junta, Colo.

88 to 94. Abstracted in The Journal, Aug. 7, 1909, p. 482.

95, 96. Abstracted in The Journal, July 17, 1909, pp. 224, 225.

Archives of Internal Medicine, Chicago

December

97 *Tuberculin Tests in Monkeys at the Philadelphia Zoological Gardens. C. Y. White and H. Fox, Philadelphia.
98 *Relation of Hypersusceptibility to Immunity. P. A. Lewis, New York.
99 *Protein Metabolism in Typhoid. P. A. Shaffer and W. Coleman, New York.
100 *Gonococcemia. E. E. Irons, Chicago.
101 *Tubercle Bacilli in the Blood. W. A. Sawyer, Berkeley, Calif.

97. **Tuberculin Test in Monkeys.**—The primary object of White and Fox's work was to protect the healthy monkeys by segregation of the infected ones. It was therefore diagnostic work, and the use of tuberculin for therapeutic purposes was not tried. They have been able to detect tuberculosis in 37 per cent. of 128 monkeys tested. No monkey which has passed the test—*i. e.*, given a negative reaction since February, 1906—has shown as yet any evidence of tuberculosis, although some have died from other causes and others have been killed on suspicion. Ten of the 79 monkeys which were passed were subsequently found to be tuberculous, either in the exhibition cages or after having been returned to the laboratory for any reason. The authors claim that by careful consideration of the temperature, by rigid adherence to hygienic measures in quarantine, and by observation of the individual peculiarities of the animals, the tuberculin test will prove an efficient means of separating infected monkeys and preserving exhibition collections.

98. **Relation of Hypersusceptibility to Immunity.**—Lewis regards the evidence that there exists a condition of specific hypersusceptibility to the true toxins, such as diphtheria and tetanus toxin, as an underlying factor in antitoxic immunity, as not at all convincing. He says that processes, such as bacteriolysis, which seem to be of fundamental importance in the state of immunity against certain bacteria, may, if exaggerated, give rise to an apparent hypersusceptibility which is really an imperfect immunity. There is no good evidence for the occurrence of a specific hypersusceptibility to endotoxins. The questions involved are rendered still more complicated by the fact that the phenomenon of anaphylaxis may be developed with bacterial proteids which are probably not in themselves factors in the production of diseases. The results of experiments which have been supposed to show that specific hypersusceptibility can be induced against the hypothetical "pure tuberculin" are so complicated by the presence of admixed substances that no final conclusion can be drawn from them. These admixed substances, presumably thermostabile bouillon constituents, may, under suitable conditions, give rise to a typical reaction of anaphylaxis.

99. **Protein Metabolism in Typhoid.**—The results of a very detailed and careful series of experiments made to determine the protein metabolism in typhoid are briefly summarized as follows:

1. By the use of diets of high caloric value and especially rich in carbohydrate it is possible to retard and, if the carbohydrate supply be sufficient, to prevent the febrile loss of body-protein-nitrogen in subjects of typhoid fever.
2. By such dietetic treatment the "toxic" destruction of body protein as well as the destruction due to simple pyrexia in this disease may therefore be either prevented or compensated for.
3. The behavior of creatin and of total sulphur in these experiments appear to show that the febrile destruction of body protein, including the action of pyrexia and of toxins, is actually retarded or

even wholly prevented by the intake of sufficient carbohydrate. The prevention of the febrile loss of body protein is therefore probably not to be explained by a mere compensatory retention of food protein.

4. The results support the belief that in fever there is a greater need for carbohydrate; that if the food does not contain sufficient carbohydrate the body protein is drawn on perhaps to supply energy in an available form; but that if sufficient carbohydrate be available from the food, the body protein is protected from the febrile destruction.

5. If, as seems probable from these results, the "toxic" destruction of body protein may be prevented by large carbohydrate intake, the mechanism of this "toxic" destruction cannot be a direct (poisonous) injury to body cells and proteins.

6. To maintain nitrogen equilibrium in typhoid the food must contain from 10 to 15 gm. nitrogen, in addition to much carbohydrate. The experiments show no advantage from a further increase of food-protein.

100. **Gonococcemia.**—Irons reports 6 cases in which the gonococcus was isolated from the blood during life.

Case 1.—The clinical picture is that of an exceedingly chronic type of gonococcus infection, from the initial urethritis ten years previously, with relapses or, possibly reinfections later, hydrocele and arthritis of recurring type, attacks of irregular fever with occasional chills, and finally a more severe attack of continued fever, arthritis, leucocytosis, and demonstrated gonococcemia. Doubtless the gonococcus could have been demonstrated in the blood much earlier had proper media been employed. During the early days of observation the case presented several points of difficulty in diagnosis in spite of the evident rôle which the gonococcus had played in the previous history. The continued fever, with relatively slight remissions, together with the abdominal maculopapules, some of which at least could not be distinguished from rose-spots, suggested the possibility of typhoid complicating some other infection. Signs of dry pleurisy were noted at the onset. Acute articular rheumatism, tuberculosis, and, later, ulcerative endocarditis of possibly pneumococcus or streptococcus origin were considered. During the period of observation in the hospital the patient presented no definite evidence of endocardial lesion. The subsequent history of cardiac difficulty and irregular fever almost two years later suggest strongly the presence of an ulcerative gonococcus endocarditis which may have had its origin at the time of hospital observation, or possibly months before. The value of vaccines in the case is problematical. The gradual fall of temperature and improvement in the joints which followed the use of vaccines without other medication may have occurred coincidently, and not as a result of the therapy.

Case 2.—The history of illness extending over a period of eight months at least, characterized by gradually increasing palpitation, dyspnea, irregular fever and chills, the physical signs of a progressive lesion of the aortic valve, enlarged spleen, and the absence of other foci of suppuration suffice for the diagnosis of ulcerative endocarditis involving the aortic valve. The history of a preceding gonorrhea and the absence of other illness, such as tonsillitis, or pneumonia, are suggestive of the nature of the infection. The isolation of the gonococcus in pure culture from the circulating blood demonstrates the true character of the infection. The use of autogenous vaccines in this case was not followed by any observable benefit. The leucocyte counts are lower than those usually found in gonococcus infections.

Case 3.—One week after the onset of gonorrhea a young man suffers a severe chill, followed by pain in several joints. The joint symptoms subside, but the chilly sensations and fever recur irregularly, with gradually increasing weakness, dyspnea, and loss of weight. Glycosuria without polyphagia or marked polyuria is found, and the patient is brought to the consultant. The history, weakness, fever, chills and anemia suggest a septic process, and the gonococcus is isolated from the blood. The gradually changing endocardial murmur, together with other signs of cardiac involvement, leave but little doubt that acute ulcerative endocarditis is also present.

Case 4.—A woman, aged 37, an alcoholic, who for some time has suffered from a genital gonococcus infection, is taken suddenly ill with multiple arthritis, fever and symptoms of severe infection, clinically not unlike acute articular rheumatism. Aside from a faint systolic murmur (possibly hemic) there is no definite evidence of endocarditis or pericarditis. The fever from the fifth day ranges between 101 F. and 103 F., later gradually rising to 106 F. and death.

Case 5.—A man, aged 39, alcoholic, the subject of chronic gonococcus urethritis, suddenly suffers from multiple arthritis, fever, and symptoms of severe infection. Careful and repeated examination of the heart show no definite evidence of endocarditis. Over the abdomen and lower chest are a number of small slightly raised reddish maculopapules which partially fade on pressure. There is a leucocytosis of 21,000. The gonococcus is isolated from the blood in numbers of 2 and 3 colonies per cubic centimeter of blood. The fever curve is sustained, with only slight remissions. The pulse in the third week of the illness is rapid. Aside from the laboratory findings and the arthritis of the knee, the clinical course, appearance of the patient, rash and temperature curve are somewhat suggestive of typhoid.

Case 6.—During an exacerbation in the course of gonococcus arthritis in a young man the gonococcus is isolated from the blood and from the joint fluid in pure culture. There is no clinical evidence during the entire course of the illness of any endocardial lesion.

101. **Tubercle Bacilli in the Blood.**—In 167 preparations made by Sawyer from the blood of 39 bleedings from 21 tuberculous cattle no tubercle bacilli were found in 110.9 hours' search; 133 of the specimens, made from gravity sediments of blood-citrate mixture, were searched 88.9 hours; the remaining 34 slides, made from laked and centrifugalized blood, were searched 22 hours. In one instance tubercle bacilli were recovered by both methods of examination from blood drawn twenty-five minutes after inoculation of the arterial blood-stream. Guinea-pig inoculations with the blood sediments of 20 tuberculous cattle failed to produce tuberculosis.

In experiments in which tubercle bacilli had been introduced into the blood, either in the circulation or in test-tubes, the examination of laked and centrifugalized blood proved much more effective in the detection of the organisms than did the search of gravity sediments from unlaked mixtures of blood and citrate solution. Sawyer found that the upper portions of gravity sediment from mixtures of blood and citrate solution are much more apt to contain bacilli than the lower parts, and that tubercle bacilli which have been experimentally thrown into the blood stream are rapidly removed from the circulation. Experiment suggests that the capillaries of the lungs are more efficient in arresting bacilli than the peripheral capillaries. Chronic tuberculosis may produce a marked partial immunity against fresh inoculation with tubercle bacilli.

Dominion Medical Monthly, Toronto

December

102 Hemorrhagic Pneumococcus Septicemia. H. B. Anderson, Toronto.
103 Alcoholism a Symptom of Constitutional Psychoneurosis. S. Soukhanoff, St. Petersburg, Russia.
104 Epithelioma of the Skin, Especially its Treatment. G. Chambers, Toronto.

Maryland Medical Journal, Baltimore

December

105 Surgery of the Thyroid (continued). R. Winslow, Baltimore.
106 Unusual Cases of Disease of the Salivary Apparatus. J. R. Winslow, Baltimore.
107 Sanitary Supervision an Aid to Commercialism. H. B. Wood, Philadelphia.
108 Van Helmont, Des Cartes, Sylvius, Borelli. H. M. Cohen, Baltimore.
109 *Why Does Opht[illegible] tinue to Cause so much Blindness? [illegible]
110 Surgery of the [illegible] McGlannon, Baltimore.

109. **Ophthalmia Neonatorum.**—Carroll does not agree with those writers who claim that blindness from ophthalmia neonatorum has been very much reduced since the Credé method of prophylaxis. He says that while a slight decrease has been observed in some quarters, an actual increase has been noted in others. On July 31, 1901, Professor Cohn of Breslau stated before the Tenth Congress of Teachers of the Blind that in twenty-five years there has been a reduction of only 8 per cent. in the ophthalmia blind in Germany. It should be noted here that twenty-one of these twenty-five years had the advantage of the Credé prophylactic. In the United States the much-desired decrease has not yet materialized. For four years, ending in 1905, the annual proportion of children blind from ophthalmia entering the New York State School for the Blind was 25 per cent.; in 1906 the new class had 26 per cent.; in 1907, 30.7 per cent. In the Pennsylvania Institute for the Blind the percentage of ophthalmia

blind admitted in 1900 was 44; in 1901, 35; in 1902, 23; in 1903, 50; in 1904, 25; in 1905, 50; in 1906, 31; in 1907, 33.3, the average for the eight years being 36.4. Comparing the average number during the first period of four years with the average of the second period of four years, we have a decrease of only 3.2 per cent.

In regard to the Maryland School for the Blind, statistics seem to indicate that blindness from ophthalmia neonatorum is decidedly on the increase. In 1890, of 94 pupils then in the school, 17.9 per cent. were blind from ophthalmia. During Carroll's connection with this institution during the past four years, he has examined 128 pupils and found 25.8 per cent. blind from this same disease. The histories of the ophthalmia pupils of the Maryland School for the Blind go to show that 29 per cent. of them are from the private practice of general practitioners, while Carroll has been unable to trace a single case to a regular lying-in-hospital. In view of this fact it must be said that there are still some physicians who do not give as much attention to the proper treatment of ophthalmia neonatorum as they should. The best means of prevention is the use of silver nitrate. The essential part of the Credé method is the instillation of one drop of silver nitrate solution into the eyes of the new-born infant, the original strength of the solution being 2 per cent., the accepted strength to-day being 1 per cent. Whether this is done as soon as the head is born, as advocated by some obstetricians, or immediately after the first bath, as advocated by others, is immaterial. Care should be taken, of course, not to let the water of the baby's first bath come in contact with the eyes, and it is well to use a small glass rod, as suggested by Credé, in the instillation of the drops. It goes without saying that the eyelids should be carefully washed with clean water and cotton before the drops are used.

California State Journal of Medicine, San Francisco

December

111 Acute and Postoperative Dilatation of Stomach. W. S. Thorne, San Francisco.
112 Points in the Treatment of Infants. L. Porter, San Francisco.
113 Treatment of Flat and Pronated Feet. G. A. Harker, Oakland.
114 Development of Medical Education in California. H. Gibbons, San Francisco.
115 Practical Points in the Diagnosis of Every-Day Skin Diseases. E. D. Chipman, San Francisco.
116 Three Non-Tuberculous Joint Lesions. J. T. Watkins, San Francisco.
117 Roentgenographic Findings in Fractures about the Elbow Joint. A. Soiland, Los Angeles.

Cleveland Medical Journal

December

118 Some Activities of the Public Health and Marine-Hospital Service in Relation to Scientific Investigations. J. W. Kerr, U. S. P. H. and M.-H. S.
119 Tests of Insanity in the Civil Court. B. A. Gage, Cleveland.
120 Idem. W. B. Laffer, Cleveland.
121 *Inflammation and Suppuration of the Omentum. C. A. Hamann, Cleveland.
122 Treatment of Placenta Prævia. A. H. Bill, Cleveland.
123 Technic of Cesarean Section. G. W. Crile, Cleveland.

121. **Inflammation of the Omentum.**—Inflammation and tumor formation following ligation of portions of the omentum are not mentioned as possibilities in the vast majority of works dealing with hernia, or at any rate Hamann says they do not seem to be as well known as they should be. His attention was attracted to the subject by the case of a middle-aged man, operated on for the radical cure of an inguinal hernia; a portion of the omentum had been tied off with catgut. The wound healed in a week or ten days by first intention, and without complications. The patient then began to complain of abdominal pain and soon a tender swelling could be felt in the hypogastrium. This reached the size of an orange and the temperature remained elevated for a week or more, 102.6 being the highest. The symptoms and physical signs then gradually subsided and the patient made a complete recovery. The diagnosis is easily made, says Hamann, if one bears in mind the possibility of such inflammatory swellings occurring after ligation of the omentum and can then elicit the physical signs and the symptoms outlined above. In some cases they have been mistaken for ovarian cysts, enlarged spleen and malignant growths, and the diagnostic difficulty will be increased if they occur a long time after operation. The treatment need not at first be operative; rest in bed of course is essential; locally, heat and moisture in the form of wet packs may be applied. If the progressive increase in the size of the swelling, fever, parietal adhesions and leucocytosis indicate the presence of pus, an incision is to be made and the abscess cavity evacuated and drained. The ultimate results in the majority of cases are favorable. An effort should be made to prevent the condition by absolute asepsis in the operation and of the ligature material, by ligating only non-inflamed omentum and by including only small portions of the omentum in each ligature.

Southern California Practitioner, Los Angeles

December

124 Present Status of Medicine and Surgery. A. S. Lobingier, Los Angeles.
125 The Barlow Sanatorium, Los Angeles, Cal. R. L. Cunningham, Los Angeles.
126 *Two Apparently New Physical Signs, whereby Normal Organs may be Outlined, and Diseased Conditions Diagnosticated, Particularly within the Chest, by Palpation. F. M. Pottenger, Monrovia.
127 Diagnosis of Gastric and Duodenal Ulcer. D. J. Frick, Los Angeles.
128 Etiology of the Venereal Plagues and some New Methods of Prevention. W. L. Holt, Banning, Cal.

126. Published in the *Lancet Clinic*, Dec. 11, 1909.

Philippine Journal of Science

August

129 Medical Survey of the Town of Taytay: Introduction. R. P. Strong, Manila.
130 Geology and Water Supply of Taytay. G. I. Adams, Manila.
131 Bacteriologic Analyses of the Water Supply of Taytay. M. T. Clegg, Manila.
132 Chemical Analyses of Taytay Waters. G. F. Richmond and V. Q. Gana, Manila.
133 Principal Foods Utilized by the Natives in Taytay. E. D. Merrill, Manila.
134 Food of the People of Taytay from a Physiologic Standpoint. H. Aron, Manila.
135 Mosquitoes and other Insects of Taytay. C. S. Banks, Manila.
136 Vital Statistics of Taytay. P. Clements, Manila.
137 General Sanitary Conditions of Taytay. P. Clements, Manila.
138 Animal Parasites of Intestine in Taytay. P. E. Garrison, R. Leynes and R. Llamas, Manila.
139 Table of Physical Examinations of Inhabitants of Taytay. F. B. Bowman, L. Lopez, V. E. Manapat and V. Rivera, Manila.
140 Examinations of the Blood with Special Reference to Malaria in Natives of Taytay. L. Guerrero and V. Sevilla, Manila.
141 Filariasis, Malaria, Tuberculosis, Typhoid, Goiter, Beriberi, and Venereal and Skin Diseases in Taytay. H. J. Nichols, U. S. Army.
142 Disposal of Human Excreta in Taytay. P. E. Garrison, U. S. Navy.
143 Summary and Conclusions of Medical Survey of Taytay. R. P. Strong, Manila.

Bulletin Medical and Chirurgical Faculty of Maryland, Baltimore

December

144 Relation of the Medical Profession to the Public. G. M. Linthicum, Baltimore.

Journal Oklahoma State Medical Association, Muskogee

December

145 Gonorrhea as seen by the General Practitioner. F. E. Waterfield, Holdenville.
146 The Nasal Septum as a Factor in Nasal Catarrh. S. H. Barnes, Enid.
147 Enterostomy. A. A. West, Guthrie.
148 Acute Gastric Catarrh. J. W. Ousley, Kansas City, Mo.

Journal of Biological Chemistry, Baltimore

December

149 The Iodin Complex in Sponges (3, 5-Diiodtyrosine). H. L. Wheeler and L. B. Mendel, New Haven, Conn.
150 The Preparation and Properties of Iodomucoids. G. M. Meyer, New York.
151 Lactic Acid in the Autolyzed Dog's Liver. T. Saiki, Albany, N. Y.
152 Liquid Extraction with the Aid of Soxhlet's Apparatus. T. Saiki, Albany.
153 The Chemistry of Cancer. T. Saiki, Albany.
154 The Estimation of Purin Nitrogen in Urine. S. R. Benedict and T. Saiki, Albany.
155 Neutrality Equilibrium in Blood and Protoplasm. L. J. Henderson, Boston.
156 *The Influence of Lactic Acid Ferments on Intestinal Putrefaction in a Healthy Individual. H. Baldwin, New York.
157 *The Catalytic Action of Aminoacids, Peptones and Proteins in [illegible] theses. H. D. Dakin, New York.
158 [illegible] D. Dakin, New York.
159 * [illegible] Benzoate on Multiplication and Gas Bacteria. C. A. Herter, New York.

156. **Lactic Acid Ferments and Putrefaction.**—Baldwin experimented with a healthy man who received in addition to a mixed diet, various preparations containing lactic acid

diagnosed as treatment was merely medical and symptomatic. But now that surgical intervention has been proposed and cardiolysis performed in 18 cases, early differentiation is of great importance. Mouriquand states that analysis of these 18 cases shows that the best results were obtained in the tuberculous variety with or without left pleurisy and mediastinitis. Preceding serous pleurisy was mentioned in 8 of the 15 cases reported in full. Rheumatism was known in the history of only 2 of the patients. As a rule, rheumatism attacks the entire heart, not the pericardium alone, and the rheumatic cases are not favorable for operative intervention. Only two of the patients failed to benefit by the cardiolysis, that is, the resection of ribs and breaking up of adhesions. (The technic was described in The Journal, July 20 and Sept. 21, 1907, pages 285 and 1061.) Setting the heart free from its fusion with pleura or chest wall relieves it of a large amount of excessive and unnecessary labor and conditions improve at once. Bulging of the precordium was noticed only in one of the cases; it is exceptional in adults. Pain in the precordium is an important and frequent sign, also the tugging retraction of the chest wall accompanying systole, and the diastolic rebound or shock. Both of the latter seem to persist after the operation. Increased area of dulness over the heart was noted in 7 out of 15 cases and jaundice in 2; ascites was a prominent symptom in 10 cases and a hard and enlarged liver in 11. The spleen was also enlarged in a few cases. In the child these latter findings exclude tuberculous peritonitis while the absence of drinking habits in the adult speaks against the assumption of cirrhosis of the liver which the syndrome otherwise suggests. Dropsical swelling of the legs was frequently observed, and occasionally cyanosis for which no cause in the lungs could be discovered. Diastolic collapse of the jugular vein was another frequent symptom but the *pulsus paradoxus* was only exceptionally encountered, although sought for in every instance. There is generally also habitual oliguria and considerable albuminuria, while traces of the primary pleurisy can usually be discovered. The age of the patients ranged from 8 to 50 but the best results of operative intervention were obtained in 10 patients between 15 and 30.

Presse Médicale, Paris

December 5, XVII, No. 10, pp. 897-904

43 Otogenous Meningitis. (Prévision de la méningite otogène.) M. Lermoyez.
44 Drug Addictions. (La toxicomanie.) L. Viel.

Semaine Médicale, Paris

December 8, XXIX, No. 49, pp. 577-588

45 *Circumscribed Serous Meningitis of the Brain Cortex. (Méningite séreuse circonscrite de la corticalité cérébrale.) F. Raymond and H. Claude.

December 15, No. 50, pp. 589-600

46 Momburg Belt Tourniquet in Gynecology and Obstetrics. R. de Bovis.
47 Experimental Research on Relations between Shock and Infection. G. Gibelli.

45. Circumscribed Serous Meningitis of the Brain Cortex.—Raymond and Claude expatiate on the differentiating points and the advantages of prompt operative treatment. The inflammation is unable to heal spontaneously and it is not benefited by lumbar puncture, but draining away the compressing fluid is liable to be followed by a rapid and permanent cure. The symptoms may be those of a brain tumor or abscess or diffuse meningitis—all affections in which the outlook for surgical intervention is far from promising, while the circumscribed serous meningitic lesion promptly subsides after incision of the cyst-like protuberance of the meninges. The authors consider that the possibility that the trouble may be of this nature should encourage surgical interference even in the most apparently desperate cases of brain lesions. They describe a case personally observed, the first on record with complete operative and autopsy findings. The patient was a man of 38, not seen until the brain had suffered severely from the compression induced by an accumulation of a serous fluid between the arachnoid and pia mater, localized in the lower Rolandic region and part of the fissure of Sylvius. This external serous meningoencephalitis of the cortical region of the brain may be accompanied by ventricular meningitis, especially when the inflammation originates in the ear, or it may occur as an isolated, easily accessible and curable circumscribed lesion. Several cases of an analogous affection of the spinal meninges have been reported in the last eight years, but only two or three involving the cerebral meninges. Axhausen's recent case is a typical example of the latter; the patient, a girl of 11, was cured by his prompt and twice repeated trephining and incision of the dura mater, which permitted the escape of a serous fluid under high pressure; the symptoms recurred at first when the incision healed. The fluid was sterile and he ascribes the trouble to a blow on the head from a stone a few days before. Finkelstein has reported a similar case which he classed as circumscribed adhesive arachnitis at the base of the brain, the patient recovering after the operation, as also in Unger's case, in which a localized syphilitic meningitis caused a collection of serous fluid in the cerebellopontine angle with corresponding symptoms. There was no constitutional taint in the case reported by Placzek and Krause recently: a young woman presented the syndrome of a tumor in the posterior cerebral fossa, but the operation revealed merely an accumulation of cerebrospinal fluid between the layers of the arachnoid and some thickening of the dura mater which was adherent to the pia. Recovery was complete after the operation in two sittings, but the temperature continued to fluctuate from above to below normal for three months afterward. All the reports mention the rising temperature and pulse rate and the sudden drop of temperature on evacuation of the fluid, but the clinical signs vary with the localization. The absence of choked disc is an important aid in differentiating the process from a brain tumor as also the high temperature which is rare with the latter. In Axhausen's case the symptoms suggested an acute meningitis but in the case reported the slow and gradual development of symptoms through several months suggested a tumor growth.

Archiv für Gynaekologie, Berlin

LXXXIX, No. 2, pp. 245-443. Last indexed October 30, p. 1519

48 Operations for Tumors Complicating Pregnancy or Delivery. (Intraperitoneale Operationen bei Schwangerschaft oder Geburt complicirenden Tumoren.) E. Clemenz.
49 *Treatment of Uterine Myomas at the Menopause. H. Palm.
50 *Melæna Neonatorum. Vassmer.
51 Elastic Fibers and Vessels of the Uterus. (Ueber die elastischen Fasern und die Gefässe des Uterus.) O. Feis.
52 Solid Tumors in Umbilical Cord. (Solid Nabelschnurtumoren.) R. Herweg.
53 *Pregnancy after Ventrofixation for Retroflexion of the Uterus. (Schwangerschaft nach Ventrofixation wegen *Retroflexio uteri fixata*.) R. Birnbaum.
54 Blood Findings in Prognosis of Puerperal Fever. (Prognosenstellung beim Kindbettfieber mit Hülfe der Blutuntersuchung.) F. Kirstein.
55 *Substitution of Salt Solution for Escaped Amniotic Fluid after Rupture of Fetal Membranes. (Die Erneuerung des abgeflossenen Fruchtwassers nach der E. Bauer'schen Methode.) Schallehn.
56 *The Country Doctor as an Obstetrician. (Der praktische Arzt als Geburtshelfer auf dem Lande.) F. v. Winckel.
57 *Eclampsia and Meteorologic Conditions. (Eklampsie und Witterung.) R. Schlichting.
58 Tubo-uterine Pregnancy. (Ueber tubo-uterine Gravidität nebst Bemerkungen zur Anatomie der Tube.) E. Lehmann.
59 Action of Colon Bacillus on Uterine and Vaginal Mucosa. (Experimentelle Untersuchungen über die Einwirkung des *Bacterium coli commune* auf die Schleimhaut der Gebärmutter und der Scheide.) G. Heinricius.
60 Suprasymphyseal Cesarean Section. (Erfahrungen bei dem suprasymphysären Kaiserschnitt.) E. Runge.

48. Uterine Myoma at the Menopause.—Palm describes a typical case of myomatous uterus in which slight symptoms were first noticed during the forties and under expectant and palliative treatment continuing until the age of 60, when the tendency to hemorrhage seemed to be arrested. After five years, however, it was found that a carcinoma had developed at which time conditions were by no means favorable for a major operation. He cites the case as one argument among others in favor of prompt operative treatment of uterine myoma whenever it causes symptoms, especially hemorrhage.

50. Treatment of Melena of the New-Born.—Vassmer tabulates the details of 67 cases he has found on record during the last 23 years. The mortality was 32.8 per cent., but it was only 10 per cent. in the 20 cases in which blood was found in the stools alone; 83.3 per cent. in the 6 cases in which it was found in the vomitus alone. Only 8.8 per cent. succumbed in the 34 cases in which gelatin was systematically given, mostly by the mouth and subcutaneous injection. A 1 or 2 per cent. solution was generally used, twice a 5 per cent., and once a

10 per cent., injecting 10 c.c. at a time, the injection of the weaker solutions repeated three or four times a day. As the 10 per cent. solution seemed to be tolerated without harm, he thinks that a small amount of this would be better than larger amounts of a weaker solution. In his own successful case reported in detail he injected 20 c.c. of 2 per cent. solution of gelatin, half in each scapular region, with more by the mouth, with 3 drops of adrenalin 1 to 1,000. This was repeated twice; there was no albuminuria afterward and the child developed normally.

52. **Pregnancy After Ventrofixation for Retroflexion of the Uterus with Adhesions.**—Birnbaum states that four women have borne children since without mishap or disturbance of any kind out of 20 treated by ventrofixation for a retroflexed and bound-down uterus. In the other cases the peritonitic adhesions and inflammatory changes found in the adnexa amply explained the sterility. When such are found there is not much hope of conception later.

55. **Substitution of Salt Solution for Escaped Amniotic Fluid.**—Bauer called attention in 1902 to his special inflatable bag with a central open tube through which he injected salt solution to take the place of the amniotic fluid lost by premature rupture of the bag of waters. Peters has also recently made use of a similar procedure. Schallehn here reports 5 cases in addition to the 5 previously recorded in which this measure was applied. In 6 of the cases it was done on account of increasing irregularity in the fetal heart sounds, and the desired effect was realized in 3 of the cases. In a number of others the measure was applied to facilitate version and the result was satisfactory in some. The labor contractions at once grew stronger in nearly every case. He has been timid about applying the measure from fear of inducing atony and atonic hemorrhage. This occurred in one case of contracted pelvis in his experience. Serious atonic hemorrhage developed after delivery which had been preceded by introduction of 500 c.c. of salt solution into the uterus. The immediate effect of the latter was excellent, the heart sounds became regular and labor more vigorous.

56. **The Country Doctor as an Obstetrician.**—In concluding this practical talk on the exigencies of obstetrics in country practice, von Winckel urges carefully written notes of the various cases. "This will transform your memories into experiences of great practical value," he declares. "No one who has not tried it will believe how important this is and how much can be learned in this way. It is an education in itself to read over and compare carefully written notes and records of this kind."

57. **Eclampsia and the Weather.**—Schlichting states that damp, bleak weather and the sultry and humid weather seem to have an influence on the incidence of eclampsia, as he shows by tables of the 262 cases of eclampsia at the Berlin Charité in the last four years compared with the weather charts. The cases in which the women present symptoms suggestive of toxemia but without actual eclampsia should be taken into account in study of the connection between meteorologic conditions and eclampsia. The two or three days preceding the actual disease should be included. (All but three of the articles in this number of the *Archiv* had been destined for a *Festschrift* on the occasion of Max Runge's sixtieth birthday, but he died just before this date.)

Archiv für Kinderheilkunde, Stuttgart

LII, Nos. 1-3, pp. 1-240. Last indexed November 13, p. 1698

61 Thirty European Cases of Mongolian Spot. (Ueber den sogen. Mongolenfleck auf Grund von 30 Fällen.) A. v. Koos.
62 Repeated Attacks of Scarlet Fever. (Wiederholte Erkrankung an Scharlach.) H. Weissenberg.
63 Syndrome after [illegible] [illegible]rlet Fever. (Vaccin-[illegible]
64 [illegible] Four. (Zur Casuistik [illegible] im Kindesalter). J. [illegible]inocouroff.
65 Rubeola Simulating Scarlet Fever. (Scharlachähnliche Röteln.) J. Baraunikow.
66 *Importance of Lime in Pathology of Rachitis. (I. Der Mineralgehalt gesunder und rachitischer Knochen. II. Der Physiologische Kalkbedarf und Rachitis infolge von unbefriedigtem Kalkbedarf.) J. A. Schabad.
67 *Diagnosis and Prognosis of Appendicitis in Children. J. E. Zimmermann.
68 Autoinoculation with Vaccine. L. Wolfer.
69 Etiology of Congenital Inspiratory Stridor. J. Rothschild.
70 *[illegible]s in Children. A. Baginsky.
71 *[illegible] [illegible]ephritis and Edema of Renal Origin. [illegible] bei Nierenentzündung und die [illegible] C. Manshardt.

66. **Importance of Lime in the Pathology of Rachitis.**—As a further contribution to this subject, Schabad relates the results of research which has shown that the proportion of water in rachitic bones is exceptionally high and that of dry substance exceptionally low. The proportion of ash is also unusually low while the proportion of organic elements is abnormally high. He found that the weight of the skeleton in the first years of life approximates 16 per cent. of the total body weight and the lime proportion of the bones 1.25 per cent. of the total weight, about 7.7 per cent. of the weight of the skeleton. The highest proportionate deposit of lime occurs during the period of most active growth, that is, between the second and fourth month for breast-fed and second and sixth months for artificially-fed infants. About 70 per cent. of the lime in breast milk is retained, but only 30 per cent. of that in cow's milk, owing to the readier assimilability of the breast milk. Although cow's milk contains four times as much lime as breast milk, yet a much larger proportion of the lime in the latter is utilized. Consequently bottle-fed infants are liable to suffer from a lack of sufficient lime, especially when they are given cow's milk much diluted. Even in breast milk there is liable to be a deficit in lime unless it contains the maximal physiologic proportion, the range being from 0.036 to 0.047 per cent. The experimental rachitis induced in animals by depriving them of lime cannot be distinguished either chemically, clinically or macroscopically from spontaneous rachitis, but the microscope shows that it is what he calls pseudorachitic osteoporosis. It is probable that besides genuine rachitis in children there is also a pseudorachitis resulting from inadequate intake or utilization of lime. It cannot be differentiated clinically from true rachitis but it presents certain features characteristic of the experimental type.

67. **Appendicitis in Children.**—Zimmermann states that operative treatment was required in 60 of the 64 children with appendicitis in Mertens' service at Bremen. The mortality of appendicitis in children is higher than in adults—in his series it was 11.7 per cent.—but he ascribes this to the fact that the affection is not recognized so early in children.

70. **Parasyphilis in Children.**—Baginsky reviews the field covered by the term parasyphilis, and declares that it is too loose and too broad for further acceptance now that the discovery of the spirochete and serodiagnosis permit accurate differentiation of true acquired syphilis in its second or third stage as well as of the manifestations of inherited syphilis. Only the cases with positive findings should be classed as true syphilis; this will exclude many affections hitherto loosely called parasyphilitic. Recent research has confirmed their various etiology, even when they closely simulate the manifestations of syphilis. This applies particularly, he says, to infantile spinal paralysis, infantilism, hydrocephalus, blood affections, such as hemophilia, severe anemia, congenital heart and other defects, aplasia, etc.

71. ***Elimination* of Salt in Nephritis.**—Manshardt tabulates the metabolic findings in ten cases of nephritis in Starck's service at the Kiel hospital for children, and gives for comparison a number of similar series published by other writers. The findings confirm the assumption that the elimination of salt is to a certain extent a reliable index of the functional capacity of the kidneys and of the amount of injury from the nephritis. The retention of salt seems to be the primary phenomenon; water is not retained until after there has been considerable retention of salt in some cases. Then large amounts of water may be retained before any tendency to edema becomes evident. In one such case the weight increased over 13 pounds before the dropsical condition became manifest. The primary retention of salt is thus an important element in the development of dropsy although other factors may cooperate, such as disturbances in the circulation, anatomic changes in the osmotic membranes, altered nutritional conditions in the cells throughout the body in general, and inability of the kidneys to eliminate water.

Archiv für klinische Chirurgie, Berlin

XCI, No. 1, pp. 1-244. Last indexed November 13, p. 1698

72 Pathology and Treatment of Umbilical Hernia in the Adult. (Nabelhernien der Erwachsenen.) E. Ruge.
73 Snapping Hip Joint. (Schnellende Hüfte.) F. Staffel.
74 Ethyl Chlorid-Oxygen General Anesthesia. (Aethylchlorid-Sauerstoff-Narkose.) Lotheissen.
75 The Muscular Extension Apparatus of the Knee in Health and after Fracture of the Patella. (Untersuchungen über den normalen Kniestreckapparat mit Rucksicht auf die bei der Patellarfractur bestehenden mechanischen Verhältnisse.) O. v. Frisch.
76 *Ultimate Results of Kukula's Method of Fixation of Wandering Kidney. S. Kostlivy.
77 *Inflammation of the Cecum. (Acute primäre Typhlitis.) W. Röpke.
78 *Operative Treatment of Inguinal Hernia in Children. (Kindliche Leistenbrüche.) P. Kovacs.
79 Fracture of the Cuboid. (Isolirte Fractur des Os cuboideum pedis.) C. Gontermann.
80 Importance of Suture Technic for Asepsis. (Bedeutung der Suturtechnik für die Wundaseptik.) C. F. Heerfordt.
81 Volvulus of the Empty Intestine in Starvation. (Volvulus intestinorum als Krankheit des hungernden Menschen.) S. Spasokukozky.
82 Numerous Free Bodies in Isolate[illegible] is of the Sigmoid Cavity. (Zahlreiche fr[illegible] isolirter Arthritis deformans der Fossa [illegible]
83 *Technic and Results of Tendon [illegible] Quadriceps Paralysis. (Endresultate der Sehnentransplantationen bei Quadricepslähmung.) W. Böcker.

76. Kukula's Method of Fixation for Wandering Kidney.—Kostlivy has been examining the ultimate outcome in 21 cases in which Kukula fastened the wandering kidney by slitting the quadratus lumborum from the twelfth rib down to the junction of the middle and lower thirds of the muscle, and inserting the lower pole of the kidney in this slit nearly to the hilus. An illustration shows the details of the operation, the kidney riding freely in the slit in the muscle. All but one of the patients were women, and in 3 cases the disturbances were first noted just before 20; in another case the kidney became displaced by a trauma after 50; in the others the disturbances developed during the third decade. Trauma was incriminated in 5 cases and childbirth in 2. In only 2 cases was the left kidney affected, including one case in which the left kidney also required fixation after an interval of nearly two years. Complicating appendicitis was observed in 5 cases, once four days after the fixation. In one case with severe general enteroptosis acute fatal arteriomesenteric incarceration of the stomach followed the second day after fixation. All the other patients were freed from all disturbances. The good results and the simple and rapid [illegible] operation requiring only 20 or 25 minutes in all—technic—the [illegible] commend it, Kostli[illegible]vy asserts, for all cases of wandering kidney causing disturbances. The kidney is fastened a trifle lower than its normal position but this has not proved any drawback. As the kidney bulges each side of the slit it is impossible for it to slip out, and it is held further by the suturing of the edge of the muscle to the fibrous capsule and by the adhesions which form in consequence of the denudation of the surface by stripping off the adipose capsule where the kidney fits into the slit. The detached ends of the fatty capsule thus loosened from the surface of the kidney are brought together behind the slit muscle and sutured together again.

Semaine

December 8, XXIX, No.

15 *Circumscribed Serous Meningitis of the Brain Cortex. ([illegible] séreuse circonscrite de la corticalité cérébrale.) [illegible] Claude.

77. Primary Inflammation of the Cecum.—Röpke reports from Riedel's clinic at Jena four cases of this kind and reviews similar cases in the literature.

78. Operative Treatment of Hernia in Children.—Kovacs states that 143 of 144 children have been completely cured of their tendency to inguinal hernia by an operation in Alapy's service at Budapest, and special circumstances were responsible for the one failure. The interval since has been from six months to a year up to several years, and the perfect results encourage operative intervention in every case of inguinal hernia in a child and even in infants unless they are kept scrupulously clean so that a truss can be safely worn. A few minor modifications of the Bassini technic are described and recommended.

83. Ultimate Results of Tendon Transplantation for Quad[illegible]s Paralysis.—Böcker gives the history to date of ten [illegible]n thus operated on, the results, he asserts, confirming [illegible]iority of the periostal method of tendon transplantation [illegible] quadriceps paralysis and of the Lange and Krause

Berliner klinische Wochenschrift

December 13, XLVI, No. 50, pp. 2225-2280

84 [illegible] tion of the Hip Joint in Infants. (Diagnose [illegible] der angeborenen Hüftverrenkung im Säug[illegible]) Joachimsthal.
85 [illegible] Acid and Nitric Oxid as Cholera Toxins. (Nitrit, salpetrige Säure und Stickoxyd als Choleragifte.) R. Emmerich.
86 Causes of Meat Poisoning. (Zur Frage der Aetiologie der Fleischvergiftungen.) Ridder.
87 *Facial Neuralgia. (Behandlung der Gesichtsneuralgie.) W. Alexander.
88 Meningomyelitis Simulating Spinal Cord Tumor. K. Mendel.
89 Treatment of Placenta Prævia. A. Dührssen.
90 Fluctuations in Antitrypsin Content of Human Blood in Disease. (Schwankungen des Antitrypsingehaltes im menschlichen Blut während des Krankheitsverlaufes.) Klug.
91 Syndrome of Pseudotumor in the Brain Recurring during Three Pregnancies. (Fall von zuerst in der Schwangerschaft auftretenem und in zwei nachfolgenden Schwangerschaften jedesmal rezidivierendem "Pseudotumor Cerebri.") W. Nolen. Commenced in No. 49.

87. The General Practitioner and Facial Neuralgia.—Alexander remarks that the general practitioner never sees a case of severe chronic trigeminal neuralgia as such patients seek the specialists and surgeons. He describes the pitiable desperate condition of the sufferers, shrinking from eating, bathing and even talking, as liable to bring on an attack, underfed and eczematous, their condition almost excusing the frequent morphin addiction or suicide. He draws the picture from life to emphasize the importance of curing the neuralgia when the general practitioner encounters it in an early stage, and then reviews the present status of treatment after removal of all possible causes, examining the fundus of the eye more than once to exclude optic disturbances. Treatment should begin with a vigorous purge, a general sweat, supplemented by salicylates internally, rest in bed and light diet. These measures should be enforced systematically in all recent cases of neuralgia of the face. If recovery does not follow in a few days the sweating procedure should be repeated and local heat applied for from four to eight hours daily, with a repetition, still more energetic, of the above medication, and perhaps application of galvanic electricity. If benefit is not apparent, the strength of the current can be increased and the sittings lengthened beyond the ordinary dosage. If no improvement is apparent after a week he advises aconitin, pushed to the limit of tolerance, and always accompanied by vigorous purging. The latter benefits by reducing the blood pressure which has a favorable action always on pain, besides clearing the system of elements for autointoxication which is now regarded as a very important factor in the etiology of neuralgia. If this course of treatment fails, there is not much prospect of relief from internal measures, and the patient should be given arsenic for a general tonic while a trial may be made of local injection of large amounts of saline solution (Schleich), but this should not be repeated more than two or three times. Lange's success with local injection of a large amount of a dilute anesthetic mixture in sciatica encouraged its application in trigeminal neuralgia, and the impression to date is favorable although the records include too few cases for decisive judgment. About 30 c.c. of the fluid is injected at the emerging point of the nerve; the foramen is readily found and this measure does not require special skill. It is ineffectual for recurrences after an operation as the scar tissue will not stretch sufficiently to answer the desired purpose. The benefit is generally only transient but the procedure can be repeated often. If all these measures fail, the only recourse is to destroy the nerve, and as injection of alcohol is easier, simpler and less dangerous than neurectomy, it should be given the preference, especially as it can be repeated if the effect wears off in time. It has the further advantage that if the wrong branch was thus treated, it is easy to remedy the mistake. If the peripheral alcohol injection does not prove successful the alcohol should be injected deeper, at the base of the skull. If an injection for each branch still fails to cure, then an intracranial operation should be considered. Even when this becomes necessary, the preceding alcohol injections have allowed such a respite that the patient has been able to take more nourishment and his general health has been so much improved that he is in much better shape for the operation. The latter is indicated when recurrences can no longer be warded off with the alcohol. (The alcohol technic and

after Rupture of Fetal Membranes. (Die Erneuer[illegible] abgeflossenen F[illegible] experiences with it have been described in THE JOURNAL during the last two years. See especially Patrick's article, Dec. 11, 1909, page 1987, also summaries of articles by others, THE JOURNAL, June 5, 1909, pages 1867 and 1890, and June 13, 1908, page 2029.)

Correspondenz-Blatt für Schweizer Aerzte, Basle

December 15, XXXIX, No. 24, pp. 833-872

92 Case of Calcification of the Liver and Other Viscera. E. Hedinger.

Deutsche medizinische Wochenschrift, Berlin

December 16, XXXV, No. 50, pp. 2201-2248

93 *Myoma and [illegible] [illegible]itität.) A. Martin.
94 *Potassium [illegible] [illegible]ilis. (Chlorsaures Kali bei [illegible] L. Brieger and H. Renz.
95 *Anatomic, Clinical and Operative Study of Chronic Posterior Parametritis. L. Fraenkel.
96 Pneumococcus Sepsis and Serotherapy. E. Rodenwaldt.
97 Findings in Central Nervous System of Mice under Arsacetin Treatment: Artificial Dancing Mice. (Weitere Untersuchungen am Zentralnervensystem von mit Arsacetin behandelten Mäusen: sogen künstlichen Tanzmäusen.) P. Röthig.
98 Lipuria. W. Voit.
99 Technic for Production and Use of Compressed Air in Hospitals. (Der Luftkompressor im Krankenhaus.) F. Kuhn.
100 Dental Protheses for Facial Defects. (Anwendungsweise zahnärztlicher Prothetik im Bereich des Gesichts.) H. Schröder.

93. Myoma and Conception.—Martin is convinced that neither the presence, location, size or multiplicity of myomas in the uterus has any influence in preventing conception. Rather the reverse, the reaction on the part of the adnexa to the presence of the myoma in the uterus favors conception and explains the delayed menopause and the pregnancies occurring late in life in women with myoma. In his experience the husband was responsible for the sterility in a large proportion of the childless marriages. He has encountered 14 cases in which conception followed removal of the myoma, and he knows of 13 other cases, but several of the women did not marry until after the operation.

94. Potassium Chlorate in Serodiagnosis of Syphilis.—Brieger states that in 65 syphilitic and non-syphilitic patients potassium chlorate used in the place of the serum of rabbits prepared by preceding injection of sheep blood corpuscles, gave exactly the same findings as when the classic Wassermann technic was used. The substitution of the potassium chlorate for the specific hemolysin hitherto deemed indispensable materially simplifies the serodiagnosis.

95. Chronic Posterior Parametritis.—Fraenkel remarks that this title is a misnomer as there may be no evidences of existing or past inflammation. The trouble is rather a posterior fixation of the lower segment of the uterus from changes in the connective tissue behind the cervix and vagina, the elastic fibers and muscle elements being replaced by connective tissue, especially in the sacrouterine ligaments. The result is a retraction of the ligaments drawing up and fastening the lower part of the uterus and thus entailing various disturbances. He has encountered this condition in every second patient with gynecologic disorders elsewhere and as the chief source of the trouble in every tenth case, out of 9,561 gynecologic patients examined. The diagnosis is facilitated by functional tests of the posterior ligamentary apparatus, especially the lack of relaxation as the uterus is retroverted. When the condition cannot be remedied by removal of the cause, tonics and various measures to promote absorption, etc., he severs the retracted ligament holding the uterus in this abnormal position, and interposes a piece of omentum to prevent the stumps growing together later, which otherwise almost inevitably occurs. His research on animals and on the cadaver has shown that the omentum can be drawn down to the bottom of Douglas' pouch without undue traction. He fastens the omentum to the cervix and vagina on one side and to the rectum on the other, and reports complete success from this intervention in two cases with an interval of nearly four years since. The cause of the condition is very often, he says, the result of the abnormal muscular reaction to masturbation, and abstention from this alone is frequently sufficient to restore conditions to approximately normal under general tonic measures.

Deutsche Zeitschrift für Chirurgie, Leipsic

November, CII, Nos. 4-6, pp. 301-604

101 Value of Blood Examination in Surgical Diagnosis. (Wert der Blutuntersuchung in der chirurgischen Diagnose.) F. E. Sondern.
102 *Surgery of the Biliary Apparatus. (Zur Chirurgie der Leber und der Gallenwege.) A. Jenckel.
103 Spontaneous Hemophilia. M. Matsuoka.
104 *Operative Treatment of Facial Paralysis. (Chirurgische Behandlung der Facialislähmung.) A. Jianu.
105 Fracture of Sesame Bones in Thumb and Big Toe. (Beitrag zu den Brüchen der Daumen- und Grosszehen Sesambeine.) R. Morian.
106 Origin and Treatment of Exostosis of the Calcaneus. (Zur Entstehung und Behandlung des Kalkaneusspornes.) R. Sarrazin.
107 Sarcoma of Rectum. E. Schumann.
108 [illegible] [illegible]stomy. M. Wilms.
109 [illegible] Distention in Treat[illegible]echnische Schwierig[illegible] bei der Hypospadie [illegible]aften: Ausziehungsmethode.) C. Beck.
110 Experiences with Amputation of the Thigh by Gritti's Technic. Mesus.
111 Bismuth Poisoning. (Wismutvergiftung nach Injektion.) M. Matsuoka.
112 Case of Paget's Osteitis Deformans. (Osteomalacia chronica deformans hypertrophica nach Recklinghausen.) Id.
113 Fracture of Outer Condyle of the Tibia. (Fraktur des Condylus externus tibiae.) H. Meerwein.
114 Plastic Periosteum Operation for Abdominal Wall Hernias. (Zur Verwendung der freien Periostplastik bei der Operation v[illegible] [illegible]en.
115 Ope[illegible] S. Weiss.
116 Ren[illegible] [illegible]ntial Pressure Procedures. ([illegible]nexstirpation unter vergleichender Anwendung beider Formen des Druckdifferenzverfahrens.) S. Robinson and F. Sauerbruch.
117 Spontaneous Laceration of Tendon of Extensor Pollicis. (Spontane Zerreissung der Sehne des langen Daumenstreckers). zur Verth.
118 Volitional and Habitual Dislocations of the Knee. (Willkürliche und habituelle Luxationen im Kniegelenk.) Id.

102. Surgery of the Biliary Apparatus.—Jenckel analyzes the experiences at Braun's Göttingen surgical clinic during the last thirteen years, and the lessons therefrom.

104. Surgical Correction of Facial Paralysis.—Jianu gives an illustrated description of a method of fastening to the corner of the mouth a strip of muscle slit up from the masseter, or the strip can be slit and sutured in turn to the superior and inferior orbicularis oris. Jonnescu has performed this operation in a case of facial paralysis following a blow from a board on the left side of the face. The results have been very satisfactory. The saliva no longer drools from the mouth and mastication proceeds normally. The operation is indicated more for paralysis of the lower facial nerve, or this technic might be combined with other procedures.

Fortschritte der Medizin, Leipsic

December 10, XXVII, No. 34, pp. 1281-1312

119 *Parotitis with Pneumonia. D. G. Zesas.
120 Treatment of Pathologic Conditions in New-Born Infants. (Therapie der Erkrankungen der Neugeborenen.) P. Sittler.

119. Parotitis with Pneumonia.—Zesas has collected 27 cases of parotitis as a complication of pneumonia and adds to the list a case personally observed. The parotitis developed the third day of the disease with a rigor and the temperature ran up to 40.5 C. (105 F.). The swelling spread to include the neck around to the back but there was no aggravation of the pneumonia symptoms. Several deep incisions were made in the region of the parotid gland, but no pus was found and no relief followed, the patient, a woman of 62, succumbing sixteen hours later. No autopsy. In 7 of the cases on record the parotitis was bilateral and led to suppuration with pneumococci in the pus. The prognosis of this complication seems to be graver the earlier its onset. Zesas' advice is not to rely on possible resolution, and not to weaken the patient by letting him lose blood unnecessarily.

Jahrbuch für Kinderheilkunde, Berlin

December, LXX, No. 6, pp. 667-794

121 *Severe Digestive [illegible] [illegible]dren after Weaning. [illegible] beim Kinde jenseits [illegible]
122 [illegible] [illegible]ilk. (Ueber die Komplemente der [illegible] and C. T. Noeggerath.
123 Proportion of Hemolytic Complement in Infant's Blood Serum Not an Index of Child's Constitution. (Ist der hämolytische Komplementgehalt des Blutserums ein Mass der Säuglingskonstitution?) L. Findlay, R. Fua and C. T. Noeggerath.
124 Importance of Comparing Curves of Weight and Height in Infants and Weakly Children. (Zur Pathologie des Längenwachstums bei Säuglingen und über das Wachstum debiler Kinder. W. Freund.

121. **Severe Digestive Insufficiency in Children After Weaning.**—Heubner has encountered 10 cases of a chronic nutritional disorder, the same type which Herter in older children calls "infantilism from chronic undernutrition." Herter's views were summarized in The Journal, March 13, 1909, page 913, and Heubner accepts his research as a most valuable contribution to science but rejects his conclusions as to the origin of the disturbances. Five of Heubner's little patients were so severely affected that one died; the others presented disturbances in a milder form. He explains the condition as a congenital defective or feeble state of the digestive apparatus. So long as the child is nursing it is able to cope with the digestive demands, but when it is weaned the insufficiency of the digestive apparatus is soon revealed. His patients were all of the upper classes and each was surrounded with the most scrupulous and devoted care. The digestive apparatus seems to be unable to tolerate milk and carbohydrates; the ferments that normally take charge of the carbohydrates seem to be lacking; the stools are of the lime-soap or fermentation dyspepsia types, but the most striking feature is the repeated sudden drop in weight. The child draws on its own reserves and although every change in diet may cause some slight improvement, yet this is speedily followed by a sudden decline in weight and signs of digestive disorder. The lack of recuperating power is the most serious element; all the organs seem to be objectively sound. He describes the clinical picture in detail and the varied dietetic treatment with which he was able to bridge over this threatening period of months and years, finally bringing the children into a fairly healthy condition. In some cases breast milk was the only anchor that held; one boy of 5 was given a wet nurse and was tided along on breast milk until past 7. He is now, twenty years later, strong and hearty. This was the severest case with a favorable outcome. In all the cases a neuropathic or other morbid inheritance was evident. Schütz has encountered 143 adults and 12 older children with this same syndrome; his experience and conclusions were summarized in The Journal, Aug. 21, 1909, page 662. Like Herter, he ascribes the trouble to a change in the intestinal flora, but Heubner thinks that this is subordinate, the insufficiency of the digestive apparatus being ample to explain the disturbances, and serving as a guide through the months of dietetic treatment.

Medizinische Klinik, Berlin

December 12, V, No. 50, pp. 1877-1916

125 *Perforated Gastric Ulcer. (Perforation des Ulcus ventriculi rotundum und seine operative Behandlung.) Steinthal.
126 Direct Visual Inspection of Upper Air Passages. (Die direkte [illegible] Bronchoskopie und ihre Bedeutung für [illegible] rapie.) T. Albrecht.
127 [illegible] Methods as Applied to the Stomach. (Magendiagnostik.) K. Kretschmer.
128 High Frequency Currents in Therapeutics. L. Freund.
129 Intravenous Injection of Diphtheria Antitoxin. H. Fette.
130 Nitrites Not Essential Factor in Cholera. V. R. Stühlern.

125. **Perforation of Gastric Ulcer.**—Steinthal reports 15 cases in which operation followed the perforation within twelve hours in all but 2 instances. In none of the cases was any attempt made to excise the ulcer and the spot was merely drawn up and sutured. Unless the ulcer was in the vicinity of the pylorus, thus creating a tendency to obstruction of the pylorus later, the suturing was not supplemented by a gastroenterostomy. In 4 cases there had been gastric disturbances for years, refractory to long continued treatment, and he urges the necessity for considering operative intervention in such cases without waiting for perforation. One patient in this group had been obliged to use the stomach-tube semi-occasionally for years; she succumbed to a secondary hematemesis while convalescing from the operation for the perforation. Another patient had suffered for years from repeated vomiting daily; a secondary gastroenterostomy was required later in this case. He insists that every case of manifest pyloric stenosis, regardless of the degree of obstruction, should be referred to the surgeon.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

December, XXX, No. 6, pp. 675-818

131 *The Centennial of Ovariotomy. A. Martin.
132 Development of the Hymen. F. J. Taussig.
133 Blood Picture in Parturients. (Hämoglobingehalt und Anzahl der roten und weissen Blutkörperchen bei Wöchnerinnen.) J. Ogata.
134 The *Bacillus aerogenes capsulatus* in Infections in Obstetric Cases. F. Scheidler.
135 Transperitoneal Vaginal Supravaginal Amputation of the Uterus or Hysterectomy. (Eine neue Methode.) A. Rieck.
136 Desmoid Vaginal Tumors. E. Kehrer.
137 *Clinical Importance of Thrombosis and Present Status of Surgical Treatment. A. Hoffmann.

131. **The Centennial of Ovariotomy.**—The *Monatsschrift* opens with a portrait of the "father of ovariotomy" and Martin adds a historical sketch of the way in which the operation was introduced into Germany and its career there since. He pays high tribute to the courage of McDowell and his imitators at that early day.

137. **Thrombosis.**—Hoffmann's article is a compilation of what has been written in late years on the origin, diagnosis and surgical treatment of thrombosis in otology, gynecology, obstetrics and surgery in general, concluding with an alphabetical list of references filling twelve pages.

Münchener medizinische Wochenschrift

December 7, LVI, No. 49, pp. 2505-2560

138 Transmission of Acute Anterior Poliomyelitis to Monkeys and from Monkey to Monkey. (Zur Aetiologie der epidemischen Kinderlähmung.) P. H. Römer.
139 *Advantages of Plaster Cast in Early Stage of Acute Anterior Poliomyelitis. (Zur Behandlung des Frühstadiums der Poliomyelitis anterior acuta.) G. Hohmann.
140 *Successful Prophylaxis of Postoperative Peritonitis. O. Hoehne.
141 [illegible] Intelligence in Children. [illegible] als Intelligenzprüfung bei [illegible]
142 [illegible] nich. C. Kayser.
143 Con[illegible] er- gl[illegible] alt F[illegible]
144 Granular Form of Tubercle Bacilli in Sputum. S. Rosenblat.
145 Advantages of Addition of India Ink to Specimen in Search for Spirochetes. (Ueber den Nachweis der Spirochaete pallida mittels des Tuscheverfahrens.) R. Frühwald.
146 Immunity of Hedgehog to Snake Venom, and Lack of Special Resistance to Ordinary Poisons. (Die Immunität des Igels gegen echte Toxine, seine Widerstandsfähigkeit gegen banale Gifte.) A. Strubell.
147 *Acute Cryptogenous Gonorrheal Arthritis. O. Mayer.
148 *Reply to Criticisms of Ehrlich's Side-Chain Theory. (Kritiker der Seitenkettentheorie im Lichte ihrer experimentellen und literarischen Forschung.) P. Ehrlich and H. Sachs. Concluded in No. 50.
149 *Demoralizing Influence on Practical Medicine of Present Tendencies of Manufacturing Chemists and Druggists. (Ueber den verderblichen Einfluss der gegenwärtigen Richtung in den chemischen Fabriken und Apotheken auf die praktische Medizin.) W. Jaworski and E. Miesowicz.

December 14, No. 50, pp. 2561-2616

150 *Etiology of Diabetes Insipidu[illegible]
151 *Influence of Charcoal on Canc[illegible] nflus-sung des Krebes durch Kol[illegible]
152 Importance of Fibrin for Ar[illegible] hage. (Experimentelles über die [illegible] mpo-nente für den postpartalen [illegible] M. Neu.
153 Relative Indications for Forceps in Delivery. (Bedeutung der relativen Zangenindikation für Unterricht und Praxis.) H. Fehling.
154 *Deep Local Application of Heat. (Diathermie, Transthermie, Thermopenetration. [illegible])
155 *Improved Means of [illegible] G. Schwarz.
156 Advantages of Ichthy[illegible] Furuncle in Outer Ear. D. Bruch.

139. **Immobilization in Treatment of Early Stage of Acute Poliomyelitis.**—Lange has applied a plaster cast in two cases of acute poliomyelitis in children between one and two years old. The paralysis developed suddenly in the night, after a febrile phase. A week or so later the pain was still severe and the children screamed at the slightest touch. The plaster cast was applied as for spondylitis and the relief was prompt.

140. **Successful Prophylaxis of Postoperative Peritonitis.**—The Journal has previously mentioned the good results attained by Glimm with prophylactic injection of camphorated oil into the peritoneum directly after an operation to ward off peritonitis. His experimental and clinical research demonstrated the feasibility and efficiency of this measure. Hoehne here reports further work in this line, confirming the facts but improving on the technic. He found by experimental tests that the success of the measure was due to the production of an aseptic inflammatory reaction to the injection of a harmless substance. By giving the substance time to induce the maximum of the reaction the effect was immeasurably enhanced. Consequently in the clinic he makes the intraperitoneal injection three or four days before the contemplated operation. He now has a record of 42 cases in which this was done, including 24 of cancer of the uterus or vagina, 6 of

pyosalpinx, and the others of various suppurative processes. Of the different substances tried, camphorated oil proved the most satisfactory, and he injects 30 c.c. of warmed, 10 per cent. camphorated oil, under local anesthesia, directly into the peritoneal sac, on the median line, just below the umbilicus, the trocar and technic generally being about the same as for lumbar puncture. A case is described here in detail to show the workings of this prophylactic measure. The patient reacted to the injection with only moderate abdominal pain and slight tenderness, the pulse and temperature being unmodified. At the laparotomy four days later the cancerous uterus was removed and the peritoneum was seen to be covered with a whitish coating, readily wiped off, while there were only minimal accumulations of oil in the lowest recesses. The microscope showed that the oil was sterile but clogged with fibrin and polynuclear leucocytes gorged with particles of oil. Two loops of the peritoneal exudate were transferred to an agar plate culture of colon bacilli and it displayed a marked influence in inhibiting the growth of the bacilli.

147. **Acute Gonorrheal Polyarthritis.**—The case here reported shows that this affection may deceptively simulate acute articular rheumatism in its onset and course. Seven joints were affected from the first and the swelling and inflammation in the environment became constantly more pronounced. One joint developed a suppurative process. No trace or history of previous gonorrhea could be discovered; the patient was a young soldier, and differentiation was possible only by the high agglutinating power of the serum, 1 to 2,000, for the strain of gonococci cultivated from the patient's finger lesion. The case emphasizes the importancee of bacteriologic as well as microscopic examination of suppuration occurring in the course of supposed articular rheumatism, especially when there is a possibility of claim for damages from occupational injury.

148. **The Side-Chain Theory to Date.**—Ehrlich and Sachs explain the side-chain theory by the light of their latest experimental and literary research, mostly in reply to the criticisms of Bang and Forssmann.

149. **Deplorable Influence on Medical Practice of Present Tendencies Among Manufacturing Chemists and Druggists.**—This article was the oration at the Polish congress for internal medicine held at Cracow last year. Jaworski goes over much the same ground as that traveled by the Council on Pharmacy and Chemistry and presents the matter in an impressive manner. He emphasizes particularly the great harm done by the manufacturers choosing names for their pharmaceutic preparations which proclaim their destined uses. No one except a physician, he says, would think of calling for phenolphthalein, for instance, when needing a purgative, but when it is labeled "purgen" and the advertisements of it face one on every hand, the sales run up. The only two drugs which actually deserve a name of this kind, he asserts, are quinin and mercury; they might appropriately be termed "antimalarin" and "antisyphilitin" if it were not for the fact that these drugs are useful in many other conditions than malaria and syphilis. He gives a long list of over a dozen different groups of proprietaries whose names suggest the disease for which the manufacturers claim they are specifics. Physicians feel, he adds, that they must prescribe the newest and latest proprietary to show that they are "up to date." He asks why the same unfavorable criticism should not be applied to those who are lauding to the skies these products of the manufacturing chemists as to physicians who practice unethical advertising methods. The manufacturers regard the advertising and lauding of their products in the medical press as an authoritative endorsement of their efficiency. But in reality physicians cannot rely on the quality, dosage or on the action of the proprietaries so extravagantly advertised, and they should throw all their influence against this pharmaceutical swindle, even if they know that by so doing they expose themselves to the danger of a damage suit brought by the manufacturers for thus injuring their business. Physicians, he declares, are allowing outsiders to step in and take out of their hands the weapons they need for the battle against disease and death, and manufacturers take and use these weapons merely for commercial purposes for their own selfish benefit. This evil of our day can be effectually combated by passive resistance and silence, but it has assumed such dimensions now that active measures are necessary at first. He then proposed a series of resolutions for the vote of the congress protesting against specifically descriptive names for proprietaries, insisting on the publication of the formula and chemical composition, and on the exclusion from the medical press of all substances advertised to the public, denouncing the prescribing of any proprietary whose formula is not published, and also denouncing the getting up of scientific articles or writing testimonials, by any physician, on any remedy whose composition is not known or whose composition may be known but its specific action is lauded in advance. Samples of such a remedy sent to the physician should not evoke a response. Druggists who compound such specific remedies or sell them should be regarded as pandering to quackery. Efforts should also be made to secure legislative restriction of the sale of alleged specific commercial remedies.

The congress voted affirmatively on these resolutions and also for the organization of state institutes for testing, controlling and publishing the results of investigation of all the new remedies. It was voted further that the code of ethics of the various medical organizations should be modified to conform to the above resolutions and that they should be brought up for discussion at the next international medical congress. Teachers in medical schools were also urged to call the attention of medical students to the evils complained of.

150. **Diabetes Insipidus.**—Schwenkenbecker describes a severe and typical case of what was supposed to be idiopathic diabetes insipidus but which turned out to be a polydipsia of psychic origin. He warns that this form should be suspected whenever the patients drink more than 10 liters of fluid a day, and drink soiled water, urine, etc., when drinking water is denied them. Another sign of this form is increased or perverted hunger and when the thirst can be quenched only by cool water.

151. **Influence of Charcoal on Cancer.**—Sticker relates a number of experiences in which rapidly growing round-celled sarcomas in dogs were completely checked in their further growth by application of charcoal. Mouse cancer was not affected to the same extent. The German cancer research central committee in 1902 started a collective inquiry in regard to the prevalence of cancer in coal miners, but the data are not sufficiently uniform for comparative study and Sticker urges further investigation in this line, noting separately the various kinds of coal and charcoal, the various kinds of cancer and the different modes of contact with the coal among the various workers.

154. **Thermopenetration.**—Nagelschmidt reviews the indications for this method of applying graduated heat to tissues at any given depth. It was mentioned in THE JOURNAL, Dec. 18, 1909, page 2139.

155. **Improved Means and Terms for Roentgen-Ray Dosage.**—Schwarz is in charge of the Roentgen institute connected with v. Noorden's clinic at Vienna, and he announces a new method of dosage for the *x*-rays as much more reliable and simpler than others in vogue. It is based on the fact that the Fowler-Eder fluid (a mixture of 2 parts concentrated solution of ammonium oxalate and 1 part of a concentrated solution of mercury bichlorid) is decomposed by the *x*-rays, with precipitation of calomel. He applies this by using a small capillary tube with a rubber top, something like a medicine dropper. The capillary filled with the fluid shows the effect of the rays by becoming turbid at one-third of the dosage which induces falling out of the hair on the scalp without inflammatory phenomena. He calls this dose a "kalom" (from *Kalomel*) and has no other gradation. When the fluid registers one kalom, that is, is beginning to become turbid, the fluid is ejected and fresh taken, repeating this until the required number of kaloms has been reached. There is no scale; limpid and turbid are the only grades.

Wiener klinische Wochenschrift, Vienna

December 16, XXII, No. 50, pp. 1737-1776

157 Mouse Cancer. (Mäusekarzinom.) H. Albrecht and V. Hecht.
158 Present Status of Trachoma Research. (Trachomforschung.) K. Lindner.

159 *Serotherapy of Typhoid and In[illegible] Findings. (Beobachtungen bei de[illegible]bdominaltyphus mit besonderer [illegible]ruber-Widalschen Reaktion.) A. Herz.
160 Fibromas in Nasopharynx. (Ueber Nasenrachenfibrome.) H. Koschier.
161 Experimental Research on Phytotoxins and Agglutinins. (Zur Kenntnis der Immunantiphytalbumine.) H. Raubitschek.

159. *Serotherapy of Typhoid and Its Influence on Agglutination.*—Herz does not attempt to draw any decisive conclusions from his experience with serotherapy in twelve cases of typhoid but his impressions are favorable. He used the antitoxic serum *prepared by Kraus' technic and calls attention* to the increase in the agglutinating property of the patients' serum noticed regularly after injection of the curative serum. Nothing of the kind was observed in a corresponding number of controls. It seems possible, he says, that this increase in the agglutinating properties after injection of antityphoid serum, perhaps also of normal horse serum, may prove a differentiating sign available in the earliest stages of typhoid before the ordinary test elicits a positive response. There were no positive findings in any febrile infectious disease except typhoid.

Zentralblatt für Gynäkologie, Leipsic

December 18, XXXIII, No. 51, pp. 1729-1752

162 Cesarean Section by Incision in the Flank. (Der Flankenkaiserschnitt.) E. Solms.

Zentralblatt für Chirurgie, Leipsic

December 18, XXXVI, No. 51, pp. 1745-1776

163 Bloodless Correction of Traumatic Coxa Vara and Coxa Valga. (Das unblutige Redressement in der Behandlung der Coxa vara und valga traumatica.) Sprengel.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 12, XXX, No. 148, pp. 1561-1576

164 Formation of Accessory Foci in Typhoid and Connection with Agglutinating Power of Serum. (Considerazioni sul problema immunitario nel corso dell' infezione tifica.) C. Quadrone.

December 14, No. 149, pp. 1577-1584

165 Perforation of Gastric Ulcer Simulating Liver Colic. V. Baiocchi.

Riforma Medica, Naples

December 13, XXV, No. 50, pp. 1373-1400

166 Kala-azar in Sicily. R. Feletti.
167 Insular Sclerosis in Girl of 3. (Caso di sclerosi a placche infantile.) S. Cannata.
168 Traumatic Separation of the Sutures in Infant's Skull. (Disgiunzione suturaria fronto-parietale traumatica del cranio infantile.) G. Diatti.

Hygiea, Stockholm

November, LXXI, No. 11, pp. 1137-1248

169 Syphilitic Stenosis of Trachea or Bronchus. (Om syfilitisk tracheobronchialstenos.) J. Tillgren.
170 Sympathetic Ophthalmia. (Två fall af sympatisk oftalmi med ovanlig etiologi.) A. Troell.

Ugeskrift for Læger, Copenhagen

November 25, LXXI, No. 47, pp. 1279-1312

171 *Germ Carriers and Prophylaxis of Transmissible Diseases. (Om Infektionsbærere.) T. Madsen.

December 2, No. 48, pp. 1313-1346

172 Diphtheria Epidemic Arrested by Preventive Injections of Antitoxin. Struckmann.
173 Removal of Adenoids and Enlarged Tonsils Effectual in Curing Certain Diphtheria Bacillus Carriers. (Om Uskadeliggørelse af Difteriinfektionsbærere.) H. Sygind.
174 Veronal in Delirium Tremens. A. Friedenreich.

171. **Healthy Bacillus Carriers and Distributors.**—Madsen gives an interesting historical sketch of what has been learned in regard to the persistence of typhoid, diphtheria and plague bacilli, meningococci and of cholera germs after recovery from the disease or in persons who have never had it. He relates a number of instances of epidemics from this source in the Scandinavian countries and then discusses what shall be done with these germ carriers. For the community, the ideal would be to isolate the infection carriers until the microbes can no longer be found in them, and this can be done with cholera and plague as the longest interval in which germs have been found was 94 days. But the persistence of germs in the other diseases renders this impossible. The only measures that can be taken are to have all persons with infectious diseases placed in isolation hospitals and detained there until they lose the germs. Especially after diphtheria, the Danish hospitals seek to retain the patients until three inoculations with two-day intervals show freedom from bacilli, which will be the case in a month in 80 per cent. After the month the patient is discharged on his demand, after careful instruction including the parents, as to the possible danger of infection in case of persisting bacilli. Especial pains are taken to learn whether the discharge of the patient will prove a danger only to the immediate family and small circle. In this case the patient is warned of the possible peril and taught how to render the dejecta harmless, to wash the hands after defecation and before preparation of food, and is warned of the peril in kissing, coughing, etc. This applies also to healthy bacillus carriers. A great and important task thus rests on physicians and hospitals; it requires much tact as it is necessary to impress the directions so forcibly as to ensure their being followed, while on the other hand avoiding frightening too much the persons involved. The affair assumes another aspect when the bacillus carrier is liable to contaminate a larger circle, as for instance in the case of a teacher, a nurse, a cook, or employees in dairies, bakeries, etc. In these cases the community has a right to insist on abstention from these occupations until free from the germs. The hospitals must also watch over their subordinate personnel that they do not spread infection; some of them must be germ carriers. Chronic bacillus carriers should be carefully trained in precautionary measures and cleanliness, and he quotes from the German regulations which keep careful record of all known typhoid bacillus carriers, with efforts to warn them away from occupations liable to contaminate large numbers. This police oversight is scarcely possible to the same extent elsewhere, but the district physicians should keep bacillus carriers in view and physicians should endeavor to find out the bacillus distributors who are responsible in many cases for infection. Systematic search for the source of infection in every case and discovery of germ carriers will certainly prove an important aid in the prophylaxis of infectious diseases. The idea that the healthy germ carrier question is beyond practical solution is unworthy of a physician, and it will soon have to be discarded both by the community and the medical profession. In Germany, after the bacillus carriers had been sought and trained, the number of infections from this source dropped to a fifth of what it had been before, showing that such efforts are not fruitless.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

Spondylotherapy: Spinal Concussion and the Application of Other Methods to the Spine in the Treatment of Disease. By Albert Abrams, M.D., Consulting Physician to the Mount Zion and French Hospitals, San Francisco. Cloth. Pp. 420, with 100 illustrations. Price, $3.50. San Francisco: The Philopolis Press, 1909.

Medizinisches Taschenlexikon in 8 Sprachen (deutsch, englisch, französisch, italienisch, japanisch, russisch, spanisch, ungarisch). Bearbeitet und herausgegeben von Dr. J. Meyer, Arzt in Berlin. Flexible leather. Pp. 788. Price, 16 marks 61 pfennige. Berlin: Urban and Schwarzenberg, N. Friedrichstrasse 105b, 1909.

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The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 5 CHICAGO, ILLINOIS JANUARY 29, 1910

Original Articles

A PLEA FOR MORE CONSERVATIVE TREATMENT OF SARCOMA OF THE LONG BONES *

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Two years ago[1] I published a paper on sarcoma of the long bones based on seventy-one personal observations. In this paper I gave a brief summary of the results of modern methods of treatment of sarcoma of the long bones. These results were by far the most disappointing in the whole field of modern surgery. Taking the femur for example, Butlin found 68 cases of sarcoma of the femur (subperiosteal), in which amputation at the hip-joint or just below the trochanter had been performed, and only one patient remained well beyond three years, which is sufficient proof of the practical failure of surgery alone in this condition.

In my former paper[1] I proposed a new method of treatment with the hope, not only of saving more lives, but, in a certain proportion of cases, of saving the limbs as well. The number of cases so treated up to that time was far too small to be convincing. The older cases have now been under observation for a longer time, and I have been able to add nineteen new cases, making a total of ninety cases of sarcoma of the long bones, which forms the basis of the present study.

My results in the cases treated by the older and more radical methods of exarticulation or high amputation correspond very closely to those of the gloomy statistics of Butlin. The six patients on whom I performed amputation at the hip-joint for sarcoma of the femur, although they all recovered from operation, died, with one exception, from local or general recurrence within a few months to a year and a half after operation, and the sixth case was not traced. Dr. Nancrède,[2] of Ann Arbor, has performed fifteen amputations at the hip-joint for sarcoma of femur, with not a single cure.

The results in cases of sarcoma of the humerus have been nearly as bad.

I cannot agree with the opinion of Dr. Bloodgood, that myeloid sarcoma of the long bones is comparatively benign, nor do I believe that it is possible to make a fairly accurate prognosis from the microscopic findings in the various types of sarcoma of the long bones. While it is true in a general way that infiltrating periosteal sarcomas of the femur and humerus are the most malignant of all known tumors, a careful analysis of any extensive statistics will show that the final results in the myelogenous or central sarcomas in these particular bones are but little better than in the periosteal type. This has been my experience and is strikingly confirmed by the results at Bruns' clinic, published by O. Kocher.[3]

While in carcinoma it is not possible to consider a patient cured who has remained well less than three years, the after-histories of collected cases of sarcoma show that in sarcoma of the long bones, if recurrence does occur, it usually takes place within a comparatively short time, in a very large percentage within the first six months and a very small percentage after the first year. There are a few exceptional cases in which recurrence has taken place a long period after operation. Nasse reports two cases recurring after periods of four years eight months and two years four months; Reinhardt published three cases which recurred two, three and four years after operation. Borck reports a case of sarcoma of the humerus, recurrent after eleven years.

I have observed one case of myeloid giant-celled sarcoma of the tibia in which the patient died of lung metastases five years after operation, and one case, primary in the bones of the foot, recurrent in the humerus twelve years afterward.

KOCHER'S STATISTICS OF CASES AT BRUNS' CLINIC

That the prognosis of sarcoma of the long bones depends, as Bloodgood believes, largely on the microscopical type of growth, being very good in myelogenous and extremely bad in periosteal sarcoma, is not confirmed by the very carefully prepared statistics of O. Kocher[3] covering ninety-three cases observed at Bruns' clinic from 1860 to 1903. Of a total of 93 cases of sarcoma of the long bones, 28 have to be excluded because the origin of the sarcomas is not definitely stated in the histories. This leaves 65 cases, of which 33 were of myeloid and 32 of periosteal origin. Of the 33 cases of myelogenous sarcoma observed, 4 have to be excluded because they were either too far advanced for operation or the patients refused it. Of the remaining 29 cases, 17 were treated by amputation, 7 by exarticulation, 4 by resection.

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, June, 1909. Owing to lack of space the article is here abbreviated. It appears in full in the Transactions of the Section and the author's reprints.

[1] Coley, W. B.: Ann. Surg., March, 1907.

[2] The terrible malignancy of sarcoma, not only of the long bones, but of other bones as well and the disheartening prognosis from operative treatment, has never been more strongly emphasized than by Dr. C. B. G. De Nancrède, of Ann Arbor, Mich., in his presidential address before the meeting of the American Surgical Association in Philadelphia, on June 3, 1909. After a most careful examination of all the recorded cases in the literature, he was able to find 66 cases of primary excision of the scapula for sarcoma which were reported with sufficient detail for the purpose of a study. In this series of cases only one patient was known to have been permanently cured, and this one, as Dr. Nancrède told me after the meeting, he had then just learned, would have to be excluded, as an interscapular thoracic amputation was performed instead of a simple excision of the scapula. Dr. Nancrède stated that these results had been entirely contrary to what he had anticipated in the beginning of his investigations—that he had had no idea that the prognosis was so absolutely bad.

[3] Kocher, O.: Beitr. z. klin. Chir., 1906, l, 118.

Of the 17 cases of myeloid sarcoma treated by amputation, the final results are known in only 11, namely:

Case 1.—Femur; amputation; death fifteen years afterward, of another trouble.

Case 2.—Tibia; amputation of femur; death four and one-quarter years later, from pleurisy; "probable recurrence."

Case 3.—Tibia; amputation; death twelve days after operation.

Case 4.—Femur; amputation; death one month later, due to metastases of liver, lung and dura mater.

Case 5.—Tibia; amputation of femur; death within two months, lung metastases.

Case 6.—Tibia; amputation of femur; death within two months, lung metastases.

Case 7.—Femur; recurrence within seven months in lymph-glands and lungs; death within nine months.

Case 8.—Tibia; amputation of femur; death after eleven months, of metastases.

Case 9.—Femur; amputation; death within two years; tumor in arm.

Case 10.—Tibia; amputation of femur; death within five years; metastases in spine.

Case 11.—Tibia; scraping; recurrence within one month; amputation of femur; death after twenty years; suicide.

The foregoing abstracts show four patients to have remained free from recurrence from four and one-quarter to twenty years; two of these are known to have died of other diseases.

In the seven cases of myeloid sarcoma of the extremities in which exarticulation was performed the results were as follows:

Case 12.—Femur; exarticulation hip-joint; death on day of operation from collapse.

Case 13.—Femur; exarticulation; death same day; collapse.

Case 14.—Femur; first amputation; two years later exarticulation for recurrence; death on day of operation, collapse.

Case 15.—Humerus; exarticulation; recurrence in two months; death within four and one-half months; metastases.

Case 16.—Humerus; exarticulation; death one-half year later of local return.

Case 17.—Humerus; exarticulation; recurrence in two months; death in six and one-half months, of lung metastases.

Case 18.—Humerus; exarticulation; death two years later of recurrence.

It will be seen that all of these patients died either in direct consequence of the operation, in collapse or of recurrence within a short time after operation.

In the four cases in which the conservative operation was done the results were as follows:

Case 19.—Radius; resection of radius and ulna; patient well twenty-seven years without recurrence.

Case 20.—Ulna; resection; patient well, seventeen years without recurrence.

Case 21.—Tibia; resection of tibia and fibula; death three weeks later from sepsis.

Case 22.—Fibula; resection; amputation of femur one year later for local recurrence.

In another case (23), a myelogenous sarcoma of the tibia, the tumor was curetted out; the patient was well three years later.

Of the 32 cases of periosteal sarcoma of the extremities, three have to be excluded for various reasons, leaving 29. In 25 of these amputation was performed, in 2 exarticulation, and in 1 each, resection and excision.

Of the patients subjected to amputation, four remained free from recurrence upward of three years; two, three months and nine months, respectively, too recent to be considered. All of the remainder have died of the disease despite operation.

Case 24.—Femur; amputation; patient living six years later.

Case 25.—Fibula; amputation; patient living and free from recurrence eight years later.

Case 26.—Femur; amputation; patient free from recurrence four years later.

Case 27.—Tibia; amputation of femur; patient free from recurrence three and one-quarter years later.

Case 28.—Femur; amputation; patient free from recurrence nine months later.

Case 29.—Tibia; first extirpation, then amputation for local recurrence; no recurrence three months later.

Case 30.—Tibia; amputation of femur; death within sixteen days from metastases in lung.

Case 31.—Humerus; amputation; death within eighteen months.

Case 32.—Tibia; amputation of femur; death within four months.

Case 33.—Femur; amputation; death four months later from lung metastases.

Case 34.—Femur; amputation; death from metastases.

Case 35.—Tibia; amputation of femur; death within six months of "pleurisy."

Case 36.—Femur; amputation; death within nine months of lung metastases.

Case 37.—Tibia; amputation of femur; death six months later.

Case 38.—Tibia; amputation of femur; death within six months of lung metastases.

Case 39.—Fibula; amputation; death one and a half years later.

Case 40.—Femur; amputation; death after one year from local recurrence.

Case 41.—Femur; amputation; death within one and a half years of "consumption."

Case 42.—Radius, amputation antebrachial; death, two and a half years later from lung metastases.

Case 43.—Humerus; amputation; death after one and a years.

Case 44.—Tibia; amputation of femur; death from local recurrence within ten months.

Case 45.—Tibia; amputation of femur; death within one and a quarter years, local recurrence.

Case 46.—Radius; antebrachial amputation; death within four and a half months.

Case 47.—Tibia; amputation of femur; death within two and a half months.

In two patients on whom exarticulation was done both died within three months; one had a sarcoma of the femur, the other of the humerus. Also the two patients treated by conservativce methods, i. e., resection and extirpation, died, one, at the end of seven months, of local recurrence; the other, twelve days after operation, of tetanus.

Summing up, we find that in 53 cases of sarcoma of the long bones there were 9 cures, or 17 per cent., after three years. Of these, 5 were myelogenous and 4 periosteal sarcoma. In the former, 2 cures resulted after amputation; 2 after resection and 1 after curetting, while in periosteal sarcoma cures were obtained only after amputation. Of these cures only three referred to the femur and none to the humerus, which agrees fully with the experience of Butlin, that sarcoma of the femur and humerus are among the most hopeless of all conditions. No less than eight of the 33 cases of myeloid or central sarcoma died of metastases.

DIAGNOSIS

While I do not think it necessary to take up in a general way the question of the diagnosis of sarcoma of the long bones, as it was rather fully discussed in my earlier papers,[4] there are certain points on which further experience has forced me to lay greater emphasis. These I will consider briefly:

About two years ago I was inclined to regard the *x*-ray photograph of but minor help in making the early diagnosis of sarcoma of the long bones. I now believe that there are certain conditions in which it is of greater aid than I at that time realized. One of these conditions is myositis ossificans, which, in the two instances which have come under my personal observation, very closely simulated sarcoma. In both cases the *x*-ray plates helped me very much in making the differential diagnosis of this condition from sarcoma. These cases are of sufficient interest to warrant a more detailed report. The first case I referred to briefly in my paper, read before the American Orthopedic Association, Washington, May 8, 1907, was as follows:

The patient, a boy of 19, had always been in good health up to November 17, 1906, when he received an injury to his right thigh while playing football. There was no external evidence of the injury noticeable that night, but the next day there was some swelling; two to three days later the leg became stiff, and the stiffness seemed to be confined to the region of the quadriceps muscle, greatly limiting the flexion at the knee. There was no pain at any time, but the swelling steadily increased in size. The patient at first believed the swelling to be in the muscle rather than the bone. The swelling slowly began to get hard and contract; the patient's general condition remained unimpaired. He was examined by a number of prominent physicians and all agreed that the trouble was sarcoma and amputation was advised. My opinion was asked by letter, and I replied that if the trouble was sarcoma I would advise a course of the toxin treatment before amputation. Thereupon the toxins were administered for about four weeks with little reaction and no apparent effect on the size of the tumor. I declined to give further advice without seeing the patient, and he consulted me early in April, 1907. Physical examination showed a tumor situated in the middle and lower thirds of the anterior portion of the shaft of the left femur. The consistency of the tumor was extremely hard, much harder than usual in periosteal sarcoma. The *x*-ray photograph showed a sharp line of demarcation between the tumor and the shaft of the femur along the periosteal line, with no indentations in the periosteum. I made the diagnosis of myositis ossificans, which was confirmed by exploratory operation under ether. I advised no further treatment. The patient has continued in good health up to the present time, two and a half years later.

The second case came under my observation a short time ago.

The patient, Miss A., aged 26, had always been in good health; negative family history. Three years ago, while tobogganing she received a very severe blow on the lower and outer part of the left thigh, just above the knee. After the immediate effects of the contusion had subsided she noticed nothing unusual until about two years later, when, on bathing, she saw that the left thigh just above the knee was somewhat larger than the right. There was no pain; no soreness, no lameness, the increase in size being the first sign she noticed. She consulted a physician who found a slight bony enlargement above the outer condyle of the left femur and an *x*-ray photograph was taken at that time, which showed a small bony tumor projecting about half an inch beyond the normal border of the shaft of the femur, not extending to the joint. This increased in size very slowly, was not painful and caused her no trouble. On Feb. 9, 1909, the patient consulted a very prominent surgeon of the middle West, who pronounced it subperiosteal sarcoma and advised hip-joint amputation. She was made very nervous by this decision and went abroad for two months to get in better physical condition. On her return, on May 3, she again consulted another very prominent physician who stated that she was suffering from a fibrosarcoma of the femur of periosteal origin. He stated that there was no possible doubt of the diagnosis and advised immediate amputation below the trochanter and urged this being done without a day's delay. She came to me for advice on May 5, 1909. Physical examination showed the patient in good general condition; examination of the left thigh showed a hard, bony tumor in the lower third of the left femur, smooth in outline, extending upward about two and a half inches, most marked on the outer side. Although it extended apparently nearly around the bone, the skin was perfectly normal in appearance and there were no enlarged veins. Comparison between the *x*-ray taken a year ago and that of a few days ago showed some increase in size and extension across toward the other side of the femur; no involvement of the joint.

In both these cases there was a well-defined sharp line of demarcation between the bone and the tumor, differing strikingly from the irregular indentation almost always present in the case of sarcoma. The consistency of the tumor, too, was much harder and more bony in character than in true sarcoma. I believed the tumor to be some type of myositis ossificans originating from the trauma, and not sarcoma. I advised an exploratory incision under general anesthesia and removal of a section of the tumor for microscopic examination. This was done on May 7. An incision three inches in length was made over the external condyle, the most prominent part of the tumor; on cutting through the fascia overlying the muscles and separating the latter, no periosteum could be recognized, a hard, bony tumor was found in close proximity to, almost infiltrating the muscles. A portion of this was removed with a chisel. Macroscopically it had every appearance and the consistence of cancellous bone tissue, deep red in color and in no way resembling the grayish-white appearance of sarcoma. This was sent to Dr. James Ewing, professor of pathology at Cornell University, who, after decalcification, made a careful examination and reported as follows:

"Seven different portions of the material received are under examination. In none of them is there the slightest trace of any form of sarcoma. The tissue shows chronic osteitis and myositis, such as commonly arises after traumatism to the bone or periosteum. The changes in the muscle are not those typical of myositis ossificans and yet new bone appears to be forming in close proximity to the atrophying muscle. I should prefer to give the diagnosis of chronic formative osteitis."

While I am a firm believer in the local infectivity of cancer of all varieties and for many years have emphasized the importance of taking precautions against infecting freshly cut surfaces during operations for removal of malignant tumors, or in exploratory operations for diagnostic purposes, there is at present a tendency to overestimate this danger. Although I cannot say that there is no danger from such exploratory incisions, I believe that such danger is infinitely less than the danger of waiting until the clinical diagnosis of sarcoma, especially of the long bones, has become certain.

This danger, however, by no means warrants the amputation of a limb, as might have been done in the two cases I have narrated, had not an exploratory operation been performed. In both cases the positive diagnosis of sarcoma had been made by surgeons of large experience.

It might be said, on the other hand, that if an exploratory operation has to be performed, the patient should be prepared for the amputation should examination of frozen sections made on the operating table confirm the diagnosis. There are two objections, however, to this procedure. 1. The highest authorities in pathology are unwilling, in many cases, to make a positive diagnosis from frozen sections. 2. Such a procedure would have been impossible in the two cases which I have described, for the reason that no examination at all could be made without decalcification, which requires upward of a week before sections can be made.

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[4] Coley, W. B.: Surg. Gynec. and Obst., February, 1908.

FINAL RESULTS OF SARCOMA OF THE LONG BONES PERSONALLY OBSERVED

FEMUR CASES (FORTY-SEVEN)

Case 1.—Female; periosteal hip-joint amputation; patient not traced beyond a few months.

Case 2.—Female; myeloid; hip-joint amputation; metastases; death in one and a half years.

Case 3.—Male; periosteal; hip-joint amputation; death six months later.

Case 4.—Male; myeloid; hip-joint amputation; death from metastases eight months later.

Case 5.—Female; periosteal; hip-joint amputation; death from metastases within eight months.

Case 6.—Male; myeloid amputation upper third; recurrence in stump; hip-joint amputation for recurrence; toxins before and after second operation; death six months later, from general metastases.

Case 7.—Female; periosteal; hip-joint amputation; metastases; death within six months.

Case 8.—Female; myeloid; hip-joint amputation; patient well five years later.

Case 9.—Male; Periosteal; hip-joint amputation; recurrence; toxins; metastases; death one year later.

Case 10.—Male; periosteal; hip-joint amputation; toxins for three months after operation; recurrence; death one year later.

Case 11.—Male; periosteal; hip-joint amputation; recurrence; toxins; not traced; patient probably died.

Case 12.—Male; periosteal; spindle-celled; middle third; amputation below trochanter; followed by toxins; later hip-joint amputation; recurrence; metastases; death two years later.

Case 13.—Female; myelogenous; mixed-celled; high amputation; death four months later; metastases in lungs.

Case 14.—Female; myeloid, round-celled, giant-celled; amputation below trochanter; toxins after operation; patient gained thirty-nine pounds; death, from metastases, one and a half years after operation.

Case 15.—Female; myeloid, round-celled; amputation below trochanter; toxins for four months after amputation; patient gained thirty pounds in weight; well at present, three years afterward.

Case 16.—Female; myeloid, round-celled; amputation below trochanter; toxins for four months after operation; patient well at present, three years afterward.

Case 17.—Male; periosteal, round-celled; hip-joint amputation; recurred in six months; toxins three weeks; patient died six months later.

Case 18.—Male; myeloid, round-celled; amputation below trochanter; toxins after operation for six months; patient well at present, three years afterward.

Case 19.—Male; doubtful, probably periosteal; round-celled; too extensive for amputation; toxins for a few weeks with little effect.

Case 20.—Male; periosteal; amputation advised but refused; no treatment; patient not traced.

Case 21.—Female; periosteal; round-celled; hip-joint amputation advised; refused; patient recovered under some vegetable compound from a cancer specialist; well five years later. Microscopical section made by the pathologist at the Norwegian Hospital; specimen lost; diagnosis doubtful.

Case 22.—Myeloid, round-celled, giant-celled; tumor of enormous size, extended into groin and iliac fossa; affected thigh measured seven inches more than other; growth too extensive even for hip-joint amputation; toxins six weeks; rapid improvement; large masses of tumor sloughed out; tumor nearly disappeared; patient gradually grew weaker and died within two months from time treatment was begun. (Case of Dr. Foote, treated under my direction.)

Case 23.—Male; periosteal, round-celled; amputation below trochanter; metastases in face and head four months later; died seven months after operation.

Case 24.—Female; periosteal, round-celled; inoculation with living cultures of erysipelas, July, 1891; no attack of erysipelas produced; rapid progress of the disease; death four months later.

Case 25.—Female, aged 21 months; tumor periosteal, round-celled, involving ilium; no treatment; death three months later.

Case 26.—Female; myeloid, round-celled; too far advanced for amputation; toxins a few weeks; little effect; death a few months later.

Case 27.—Female; periosteal, round-celled; hip-joint amputation (Walker); patient reported well ten years afterward.

Case 28.—Female; doubtful; too far advanced for hip-joint amputation; toxins four weeks; slight improvement; patient not traced.

Case 29.—Male; periosteal, round-celled; amputation at hip-joint advised and refused; *x*-ray, followed by extensive metastases in the pectoral and iliolumbar regions; recovery under systemic injections with the toxins; patient well at present, seven years later.

Case 30.—Female; myeloid, round-celled, giant; tumor too extensive even for hip-joint amputation. Microscopic examination by Dr. Mandelbaum, pathologist, Mount Sinai Hospital, confirmed by Dr. T. Mitchell Prudden, professor of pathology, College of Physicians and Surgeons. Toxins by Dr. Elsberg for three months; final recovery; spontaneous fracture united; patient well six years later.

Case 31.—Female, aged 34 years; upper third of femur; no microscopic examination; toxins; patient improved; not traced.

Case 32.—Male, aged 10 years; periosteal, small round-celled; exploratory operation; mixed toxins given for nine months; almost complete disappearance of the tumor of the femur; metastases developed in the brain; large retrobulbar tumor, causing death a year later.

Case 33.—Male; periosteal; operation refused; toxins a few weeks; no improvement; patient not traced.

Case 34.—Male; periosteal; no microscopic examination; amputation advised; refused; patient not traced.

Case 35.—Male; myeloid, round-celled; exploratory operation by Dr. L. S. Pilcher; amputation of thigh advised but refused; microscopic examination by Dr. George Biggs, pathologist of the New York Hospital; slow disappearance of growth following curetting; patient well two years.

Case 36.—Male; periosteal, small round-celled; exploratory operation; toxins two weeks; temporary improvement; amputation below trochanter two weeks later, followed by toxins; local recurrence; lung metastases; death four months from date of the blow which, apparently, was the exciting cause of the tumor.

Case 37.—Female, aged 80; tumor periosteal, round-celled; partial excision of tumor; very rapid growth; toxins for a few weeks; no effect; death within four months.

Case 38.—Male; myeloid; no operation; toxins; temporary improvement; not traced.

Case 39.—Male; periosteal, involving ilium; no operation possible; toxins a few weeks; no improvement.

Case 40.—Male; chondrosarcoma; inoperable; toxins for three weeks; slight improvement; not traced.

Case 41.—Male; periosteal, round-celled; partial operation; toxins; temporary improvement; death following extension of the disease.

Case 42.—Female; periosteal; inoperable, enormous size; toxins administered under my direction for about two months; no improvement; death from exhaustion.

Case 43.—Male; periosteal; middle and upper thirds; toxins for four months; marked improvement; finally spontaneous fracture; amputation at hip-joint by another surgeon; patient recovered; well at present, a year and a half later.

Case 44.—Female; periosteal; extremely rapid growth, following trauma; toxins two weeks; no improvement; amputation below trochanter; toxins after operation; death from lung metastases four months from receipt of injury.

Case 45.—Female; periosteal, round and spindle-celled; amputation below trochanter; toxins November, 1909, continued with intervals up to the present time; patient in perfect health August, 1909.

Case 46.—Male; periosteal; round-celled, inoperable; toxins; temporary improvement.

Case 47.—Male; periosteal, round-celled; middle and upper third; partial excision of tumor; curetting; then put upon the toxins for two periods of about six weeks each; severe reactions; circumference of thigh diminished two inches under treatment; tumor practically disappeared; patient has been working since; practically well, a year and a half later. Treatment carried out by Dr. Wilmoth of Louisville, Ky.,[5] under my direction.

TIBIA CASES (FIFTEEN)

Case 48.—Female; myeloid, round-celled; recurrent after three conservative operations in spite of toxins; amputation; toxins after operation; patient well a year and half later.

Case 49.—Female; periosteal, round-celled; vascular tumor; amputation urged, but refused; patient not traced.

Case 50.—Female; myeloid; amputation lower third of thigh; patient well ten years later.

Case 51.—Male; periosteal, spindle-celled; mixed toxins before operation in the hope of saving limb; entire disappearance; patient well ten and one-half years later.

Case 52.—Male; periosteal, round-celled; amputation of thigh; patient not traced.

Case 53.—Female; myeloid, round-celled, giant-celled; rapid recurrence after two conservative operations; mixed toxins combined with *x*-ray for a short time; under six months' treatment the tumor disappeared; patient well at present, four years later.

Case 54.—Male; myeloid, round-celled; toxins three months; no improvement; patient not traced.

Case 55.—Female; doubtful, spindle-celled; amputation above knee; metastatic recurrence in spine; death within seven months.

Case 56.—Male; adult; middle and upper thirds; amputation advised; refused; patient not traced.

Case 57.—Male; adult; myeloid; amputation advised; refused; no treatment; patient not traced.

Case 58.—Male; myeloid, round-celled; amputation of upper third; local and general recurrence, pleura and rib, four months later; died six months after operation.

Case 59.—Female; adult; round-celled amputation above knee; patient not traced.

Case 60.—Female; myeloid, round-celled with giant cells; amputation middle of thigh; (Bull) metastases six months later; death within a year; toxins used after generalization with little effect.

Case 61.—Male; aged eleven months; no microscopical examination, but clinical diagnosis beyond doubt; tibia and fibula; general metastases within four weeks after original trauma; death six weeks later.

Case 62.—Female; myeloid; tibia and fibula; very rapid growth; amputation four weeks after first noticed; joint involved; toxins begun four weeks after operation, given for a short time; patient died of metastases one year later.

HUMERUS CASES (FIFTEEN)

Case 63.—Female; amputation; recurrence in five months.

Cases 64.—Male; periosteal, round-celled; amputation shoulder-joint (Bull); recurrence within five weeks; toxins; tumor disappeared; patient died five months later of metastases.

Case 65.—Male; periosteal, round-celled; amputation; metastases within a few weeks with development of similar growth in opposite humerus; patient died a few weeks later.

Case 66.—Male; myeloid, round-celled; amputation shoulder-joint (Bull); metastases, other humerus and lungs; death a year after first operation.

Case 67.—Male; periosteal (no microscopic examination); amputation advised, but refused; patient died ten months from beginning of first symptoms.

Case 68.—Male; periosteal, round-celled; tumor of four months' duration, enormous size; amputation of shoulder-joint, portion of clavicle and scapula; developed metastases in three months; death seven months from beginning of disease.

Case 69.—Female; chondrosarcoma; excision of tumor; recovery from operation; patient not traced.

Case 70.—Male; adult; upper end of humerus; no microscopic examination; doubtful whether periosteal or central; amputation of shoulder-joint advised; refused; patient not traced.

Case 71.—Male; periosteal, round-celled; inoperable; no treatment; death in five months from beginning.

Case 72.—Female; periosteal, round-celled; upper end; preliminary use of the toxins; temporary improvement; amputation advised; refused; patient left hospital and died three months later.

Case 73.—Female; periosteal; amputation at shoulder-joint advised; operation performed by another surgeon; death from shock.

Case 74.—Female; myeloid, round-celled; partial operation, removal of head of bone, part of coracoid process glenoid cavity; disease not completely removed; mixed toxins after operation; entire recovery; patient shown before Suffolk County Medical Society November, 1908—ten years later—in perfect health; perfect use of arm. (Case of Dr. J. Babst Blake.)

Case 75.—Male; periosteal; exarticulation (Dr. Goodman, August, 1907); mixed toxins given after operation for five weeks; patient gained 9 pounds and remained well for six months; then showed evidence of lung metastases; died a few months later.

Case 76.—Male; periosteal, round-celled; enormous size; exarticulation by Dr. Brackett, Boston; toxins before and after operation; patient well at present, sixteen months later.

Case 77.—Female; periosteal, round-celled; preliminary use of toxins for two weeks; slight improvement; operation advised; at first refused; performed two weeks later; *sarcomatous thrombi* present in the subclavian vein, severed beneath clavicle; axillary glands extensively involved; local recurrence shortly after operation in pectoral region; disappeared under toxins; patient regained normal weight and strength; eight months later developed metastases in lungs and pleura; rapid decline; death in a few weeks.

RADIUS CASES (FIVE)

Case 78.—Female; periosteal; lower third; operation refused; patient not traced.

Case 79.—Female; meyloid, round-celled, giant; lower third; two conservative operations by Dr. Hibbs, first in 1900; second January, 1902; amputation advised by several surgeons: but refused; patient alive and well at present, seven years later.

Case 80.—Female; periosteal, round-celled; lower end; amputation September, 1906; toxins three months after operation; patient well at present, nearly three years later.

Case 81.—Male; 70 years old; spontaneous fracture May, 1907; patient shortly afterward developed numerous bony tumors in the skull; death three months later; no autopsy; toxins given for a few weeks, with little effect. Tumor possibly hypernephroma or myeloma. The clinical diagnosis was for cancer.

Case 82.—Female; myeloid; lower end; spontaneous fracture; curetting by Drs. Hartley and Pool; *amputation strongly* advised, but refused; toxins for five weeks; patient perfectly well at present, sixteen months later.

FIBULA CASES (THREE)

Case 83.—Female; spindle-celled; upper end, joint not involved; toxins six weeks before operation: tumor decreased in size; improvement temporary; amputation; *death from lung* metastases two years later.

Case 84.—Female; (?); upper end of fibula; amputation advised; refused; patient not traced.

Case 85.—Male; periosteal, round-celled and spindle-celled; upper third of fibula; *excision July, 1908, by Dr. Gerster*; local recurrence eleven months later; toxins six weeks; temporary improvement; patient not traced.

ULNA CASES (TWO)

Case 86.—Female; periosteal; lower end ulna; no treatment; metastases in lung and pleura; died less than one year from beginning of symptoms.

Case 87.—Male; periosteal; spindle-celled; middle, *following* green-stick fracture; amputation middle *of arm in 1899* (Tully Vaughan of Washington); remained well for seven years; then recurrence in abdomen; October, 1906, *entire abdomen* filled with tumors; marked distention; mixed toxins begun in November, 1906; very marked decrease in size of tumors; nearly disappeared in February, 1907; patient has been at work up to the present time, nearly three years; advised to continue the toxins regularly, but did not do so; there has recently been increase in size.

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[5] This case was not observed personally by me but was treated under my direction.

METACARPAL BONE

Case 88.—Female; periosteal, round-celled; third metacarpal; exploratory incision; amputation middle of forearm; metastases in both breasts and abdomen within four weeks; patient died eight weeks later.

METATARSAL BONE

Case 89.—Female; periosteal, round-celled; second metatarsal; exploratory operation; amputation of leg; mixed toxins for six months after operation; patient well at present; eight years later.

CLAVICLE

Case 90.—Male; periosteal, round-celled; excision of clavicle by Dr. Maurice H. Richardson, May, 1908; toxins immediately after operation, continued for eight months, with a few short intervals of rest; patient at present in perfect health, August, 1909, sixteen months later.

SUMMARY OF FINAL RESULTS

Femur Cases.—Eight patients have remained well from three to ten years. Three of these cases were periosteal and five myelogenous. The mixed toxins were used in 5 of the successful cases, after operation in 3 and before operation in 2. In both the disease was too far advanced for hip-joint amputation. The patients are both well, upward of six years afterward.

Tibia Cases.—Three patients have remained well beyond three years. Of these cases one was of periosteal, two of central origin. In the periosteal case the patient was cured by the toxins without amputation and has now been well for ten years.

Radius Cases.—Three patients have remained well from a year and a half to seven years. Two cases were myeloid and one periosteal. One patient on whom operation and curetting was done has been well for seven years. The second patient was treated by amputation, followed by the mixed toxin treatment, and has been well for three years. In Case 3, curetting was done; amputation advised and refused; toxins used; patient has been well for a year and a half.

Ulna Case.—One patient, well more than three years after treatment. The tumor was spindle-celled sarcoma; amputation was done. The patient remained well seven years; then developed extensive abdominal metastases nearly filling the abdomen. Toxins were administered; tumors nearly disappeared under six months' treatment. The patient was advised to continue the toxins, but neglected to do so. He resumed his work and has continued up to the present time, but there is evidence that the tumors are again increasing.

Humerus Case.—One patient, well more than three years ofter treatment. The tumor was a round-celled, infiltrating sarcoma of the upper end (containing giant cells), involving the scapula. Partial excision was done, followed by the toxin treatment. The patient has been well ten years.

Metatarsal Bone.—The tumor was a periosteal round-celled sarcoma. Amputation of leg was performed, followed by toxin treatment. The patient has been well eight years.

Not a single one of my successful cases treated with the toxins has been a true giant-celled sarcoma in the proper sense of the term, meaning an encapsulated endosteal tumor. It is only necessary to divide sarcomas of the long bones in two main groups, namely, periosteal and central or myelogenous, and it is the relative malignancy of these two groups that we have discussed. The pure endosteal sarcoma that has not broken its capsule and not begun to infiltrate the surrounding tissue, if discovered and operated on at this stage, may very well be treated as a nearly benign growth, and amputation should never be advised. Such favorable case, however, has never come under my observation; my experience has been limited to the periosteal and to that type of central or myelogenous sarcoma which has broken the capsule and has become a large infiltrating tumor.

Many cases of inoperable sarcoma of other bones successfully treated with the toxins furnish additional reasons for advocating their use in sarcoma of the long bones.

The final results in this group of cases, while far from ideal, are certainly much superior to the results in other series of cases in which no toxins were used. In making comparisons with other groups, it must be considered that my series is far different from the ordinary series of cases of sarcoma of the long bones observed at a single large clinic or series of cases collected from the surgical literature. The majority of my cases have first ~~been~~ through the hands of other surgeons who regarded them as hopeless when sending them to me. Two cases alone of this group furnish conclusive evidence of the curative value of the toxins and justify us in advocating the treatment for a brief period before resorting to amputation.

In one case (Case 51), a spindle-celled sarcoma of the tibia, which recurred promptly after excision and in which the diagnosis had been confirmed by microscopic examination made by Dr. John Caven, professor of pathology, University of Toronto, and amputation had been advised, disappeared under two months' treatment with the toxins and the patient remained perfectly well for ten years and was shown before the New York Surgical Society in February, 1909.

The second case (Case 29) was one of periosteal round-celled sarcoma of the femur, involving two-thirds of the shaft with extensive metastases in the pectoral and iliolumbar region, in which amputation, advised before metastases had occurred, was refused. ~~The tumors disappeared~~ under the mixed toxins and the patient is well at present, seven years later. The diagnosis in this case had been confirmed by Dr. B. H. Buxton, professor of experimental pathology, Cornell University Medical School, and Dr. E. K. Dunham, professor of pathology, Bellevue Medical School.

In addition to these cases there have now been fourteen others in which an arm or leg has been saved by preliminary toxin treatment.

DETAILED REPORT OF THE MORE IMPORTANT CASES

Case 15.—*Summary.*—Mixed-celled periosteal sarcoma of the lower end of the femur; amputation; followed by mixed toxins for four months; patient well three years later.

History.—S. D., female, aged 18; no trauma; admitted to the Hospital for Ruptured and Crippled with the following history: One year ago first noticed pain in the right knee; first treated for rheumatism; later, at another hospital the condition was regarded as of tuberculous origin and plaster splints applied. This *treatment* was continued for seven months. The last two months before she was admitted to the Hospital for Ruptured and Crippled, she had become very emaciated and extremely weak. The right knee showed a fusiform swelling just above the joint with 4 inches enlargement; the knee was acutely *tender and motion* very painful. The *x*-ray showed the lower 6 inches of the femur nearly twice the normal thickness. From the previous history and the *x*-ray the condition was regarded by Dr. Gibney as tuberculous, and it was decided to excise the joint. On opening the joint he found it in perfectly healthy condition, while the femur above was much thickened and presented several softened areas purplish in color. The lower end of the femur had become almost entirely disorganized, shaft and condyles being connected only by three narrow bridges of bone. Microscopic examination made by Dr. Jeffries, pathologist to the Hospital for Ruptured and Crippled, showed the growth to be a mixed-celled sarcoma of the myeloid type. The case was referred to me by Dr. Gibney. I advised immediate amputation and performed the operation on April 7, 1906, 4 inches below the trochanter. The patient was put on the mixed toxins April 26 and showed very rapid increase in weight, rising from 69 pounds on June 12, to 92 pounds October 24. The toxins were continued from April 26 to the latter part of August. The patient has been in perfect health up to the present time, a little over three years.

Case 16.—*Summary.*—Periosteal, round-celled sarcoma of the femur; amputation below the trochanter; toxins four months; patient well three years.

History.—C. L., female, aged 12; swelling of lower end of femur noted in January, 1906, two weeks after an injury to the right knee from a fall. Patient entered the Hospital for Ruptured and Crippled in August, 1906. The entire lower third of the femur was involved, the entire bone being apparently enlarged. An exploratory operation was performed, showing a periosteal round-celled sarcoma. A few days later amputation 4 inches below the trochanter was performed and the patient was put on the mixed toxins as soon as the wound was healed. The treatment was continued until Jan. 15, 1907, four and one-half months. She has remained well up to the present, October, 1909, that is, for three years.

Case 29.—*Summary.*—Round-celled periosteal sarcoma of the femur involving lower two-thirds of the shaft, with extensive metastases in the pectoral and iliolumbar region, successfully treated with the mixed toxins; patient well over five years.

History.—A. G., aged 19; first noticed swelling in the lower portion of the left femur in November, 1901. This gradually increased in size, being accompanied by loss of weight and deterioration of general health. The patient was referred to me by Dr. W. R. Townsend, and was admitted to the General Memorial Hospital on Feb. 8, 1902. At this time there was a large tumor, extending from the condyles of the left femur to the junction of middle and upper thirds. There was a fusiform enlargement of the lower two-thirds of the femur. An exploratory incision under ether was made and a specimen of the tumor removed. Microscopical examination made by Dr. E. K. Dunham of Carnegie Laboratory and B. H. Buxton of Cornell Medical School, showed the growth to be a round-celled sarcoma—not giant-celled. Amputation at the hip-joint was strongly advised, but refused. The patient was put on the *x*-ray, which was continued for several months, with temporary improvement, both local and general. In December, 1902, however, there developed a large metastatic tumor in the left pectoral region, which grew with great rapidity and was highly vascular. It was partially removed under ether anesthesia. At about the same time there developed a much larger metastatic tumor in the right iliolumbar region, which grew to the size of a child's head. This was firm in consistency and, apparently, of retroperitoneal origin. At this time the mixed toxins of erysipelas and *Bacillus prodigiosus* were given systemically, into the gluteal region, no local injections at all being given. A few weeks later the tumor of the iliolumbar region began to soften the breakdown, and when fluctuation became evident it was opened and between a pint and a quart or necrotic tumor tissue evacuated. A large drainage-tube was left in the iliolumbar region and the sinus remained open for more than a year. The patient recovered perfect health and is alive and well at the present time, nearly seven years later.

Case 51.—*Summary.*—Large, recurrent spindle-celled sarcoma of the tibia (periosteal); operation; treatment with toxins; patient well ten years later.

History.—J. F., male, aged 40 years; farmer by occupation, Ontario, Canada; family history good; operated on July 28 and Nov. 25, 1898 (excision of tumor); microscopical examination was made by Dr. John Caven, professor of pathology at the University of Toronto, Canada; diagnosis, spindle-celled sarcoma. The disease quickly recurred. Amputation was deemed necessary, but a preliminary trial with the mixed toxins was advised. The patient entered the general Memorial Hospital Feb. 12, 1899, for the treatment with the toxins. Result: Entire disappearance of the tumor. The patient has remained in perfect health since; he is now well upwards of ten years. He was shown before the Medical Society of Greater New York, February, 1909.

Case 30.—*Summary.*—Round-celled myeloid sarcoma of the femur, too extensive for hip-joint amputation; treatment with toxins; entire recovery; the patient perfectly well more than six years afterward.

History.—R. L., female, aged 19, was admitted to Mount Sinai Hospital on May 24, 1898, and remained until July 24, suffering from spontaneous fracture of the femur. The diagnosis of malignancy was not made until her readmission on Dec. 24, 1898, when it was found that there was a shortening of 2.5 cm. The trochanter was 2 cm. above Nélaton's line, false motion in all directions. The upper and outer aspects of the thigh were occupied by a large swelling of semisolid consistency. There was no tenderness. The patient's general condition was only fair. On Jan. 5, 1899, Dr. A. G. Gerster made an incision into the tumor, which was found to be soft and intimately connected with the bone, apparently springing from the medulla of the femur. The tumor was considered inoperable, and a specimen was removed for pathologic examination, and pronounced giant-celled sarcoma by Dr. Mandlebaum, the hospital pathologist. On January 25 the administration of the mixed toxins of erysipelas and *Bacillus prodigiosus* was begun. The initial dose was 1 minim, which was gradually increased up to 3 minims, daily injections being given. The injections caused severe reactions, with pronounced chills and a temperature up to 105. A large portion of the tumor became necrotic, the patient's general condition grew markedly worse; and she was transferred to the Montefiore Home for Incurables. Shortly after her admission the tumor began to decrease in size; large masses of broken-down tumor tissue were discharged every few days. In May, 1901, the greater part of the tumor had sloughed away and the patient began to gain a little in flesh and strength. On May 29, 1901, the opening was enlarged by Dr. John Rogers, the large cavity of the bone was exposed and curetted and the wound packed. The sinus not having entirely closed on Feb. 29, 1902, the wound was again enlarged and curetted by Dr. Elsberg. The bone cavity was filled with iodoform and paraffin. The material removed at this last curetting showed no sarcomatous element. The patient rapidly improved in general health, and the femur became firmly reunited. The patient was well when last heard from, four years ago, when she was shown before the New York Surgical Society in perfect health and with perfect restoration of the function of the limb.

The diagnosis in this case was further confirmed by microscopic examination made by Dr. T. Mitchell Prudden, professor of pathology to the College of Physicians and Surgeons.

Case 53.—*Summary.*—Round-celled sarcoma (myeloid) of the tibia, rapidly recurrent after two operations. Entire disappearance under the mixed toxins of erysipelas and *Bacillus prodigiosus* combined with a short period of *x*-ray treatment.

History.—K. K., female, aged 17; good general health with no family history of malignant disease, was treated at several metropolitan clinics from Sept. 29, 1904, to March, 1905. At these various clinics the disease was regarded as tuberculous in nature. The first symptom noticed was pain in the ankle; later a small swelling appeared over the internal malleolus, which was painful on pressure. This was first treated with a rubber plaster strap, later with the application of salves and, in May, 1904, a plaster-of-Paris splint was applied. In September, 1904, the patient was unable to walk; the lower end of the tibia became enlarged and an area of softening, which was regarded as pus, appeared over the internal malleolus, with slight effusion in the joint. There was also marked atrophy of the muscles of the leg. On Oct. 11, 1904, the patient was operated on by Dr. V. P. Gibney. An incision 2¾ inches long was made over the lower and inner side of the tibia and 8 ounces of thick, reddish-brown soft material were removed from the bone. The entire lower third of the tibia was apparently involved, only a thin outer shell remaining. There was no evidence of involvement of the fibula, and the ankle-joint itself did not appear to be invaded. A microscopic examination was made by Dr. F. M. Jeffries, pathologist to the hospital, who pronounced it myelogenous giant-celled sarcoma. The disease very quickly recurred and a second operation was performed on Jan. 3, 1905. The very large local recurrence was again curetted and chiseled out. The patient was then put on the mixed toxins of erysipelas and *Bacillus prodigiosus*, the injections being made partly in the vicinity of the disease and partly in the buttocks. There was a beginning recurrence of the tumor in spite of the treatment, but on increasing the dosage the tumor soon appeared to reach a quiescent stage. The patient was admitted to the General Memorial Hospital in April and toxins and *x*-rays were pushed vigorously until July. During this period the tumor slowly retrograded, and when she was discharged in the latter part of July, 1905, there was very little of the tumor remaining. I made a subsequent examination in October, 1905, at which time the tumor seemed to have entirely disappeared, but there was a small area of granulation, the size of a silver quarter, which remained unhealed. I examined the patient at intervals thereafter, but there always remained a sluggish ulcer which did not yield to local treatment. As there was no evidence of a return of the disease, a year ago, the patient was readmitted to my service at the General Memorial Hospital and the ulcer, which by this time had become the size of a silver dollar, was covered with skin grafting. The grafts took perfectly and the patient has been entirely well up to the present time. The fact that no recurrence has taken place within four years since the treatment was discontinued, justifies us, I think, in regarding the patient as probably cured.

Case 18.—*Summary.*—Periosteal small round-celled sarcoma of the femur; antecedent trauma; amputation below the trochanter by Dr. J. F. Erdman; toxins administered after operation and continued for four months; patient in perfect health three years later.

History.—W., aged 35, male, in the spring of 1906 had "rheumatism for a number of months; the pain increased; general health deteriorated; shortly afterward there appeared a bony swelling in the lower end of the femur; clinical diagnosis of sarcoma was made and confirmed by exploratory incision in September, 1906. Microscopic examination proved it to be small round-celled sarcoma. In view of the patient's poor general condition, I advised amputation below the trochanter to be followed by the use of the toxins. The operation was performed a few days later by Dr. J. F. Erdman, and as soon as the wound had healed, the patient was put on the toxins. He was extremely nervous and his general condition was bad. The toxins were continued in gradually increasing doses for five months. The patient has been perfectly well, attending to his business up to the present time, three years later.

Case 80.—*Summary.*—Round-celled periosteal sarcoma of radius; amputation; mixed toxins administered after operation and continued for about four months; patient well nearly three years later.

History.—L. M. L., aged 31, female, first noticed pain in the left hand and wrist in the fall of 1905; was treated for rheumatism for several months. In January, 1906, a lump appeared in the lower end of the left radius; this increased slowly in size and was attended with a moderate amount of pain. The patient came under my observation in September, 1906; examination showed the lower end of the left radius occupied by a tumor about the size of an orange. The tumor had so com-
etely destroyed the radius that spontaneous fracture had
n place with considerable displacement, giving the appear-
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olving periosteum, successfully treated
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Case 79.—*Summary.*
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with the mixed toxins o
without amputation.
History.—M. F., female,
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On Easter Sund

injuring the same wrist. The patient saw a local physician, who told her that the wrist was broken. She was then sent to the New York Hospital, where the condition was at first regarded as a fracture, but two days later an *x*-ray plate was taken which showed, in addition, a pathological condition of the bone. An operation was performed by Dr. Eugene H. Pool and Dr. Stewart, at the New York Hospital, on May 1. The periosteum was found covered with soft reddish tissue; the central portion of the bone was also filled with the same material. This was curetted out on either side and the fractured edges were approximated. The fracture, which was evidently of pathological origin, due to sarcomatous degeneration of the bone, was about two inches above the lower end of the radius. On May 18, 1908, no evidence of union had appeared and amputation was advised by Drs. Hartley and Pool, but absolutely refused by the patient, and she was discharged from the hospital. On May 22, four days later, she was admitted to my service at the General Memorial Hospital and was immediately put on the mixed toxins of erysipelas and *Bacillus prodigiosus.* Physical examination at that time showed the following condition: The left wrist was considerably thickened about three inches upward from the lower end of the radius. Two inches above the lower end there was a point of motion, showing a fracture. The toxins were given four to five times a week, the injections being made chiefly into the pectoral region and arm; no local injections were given. The swelling about the lower end of the radius slowly but steadily subsided and decreasing mobility showed that union was gradually taking place. No other treatment of any kind was given. After the patient left the hospital, union gradually became more firm, and when I examined the patient last, in August, 1909, she was in perfect health and there was no evidence of metastases. The pathological report by Dr. Elsner, pathologist to the New York Hospital, shows the tumor to be a round-celled, giant-celled sarcoma of the lower end of the radius. This patient was shown before the meeting of the Medical Society of Greater New York in 1909.

DISAPPEARANCE OF SARCOMA OF THE HUMERUS FOLLOWING INJECTIONS OF COLEY'S FLUID

Dr. Ashdown,[6] surgeon to the Metropolitan Hospital of London, reports the disappearance of a tumor, probably periosteal sarcoma, of the humerus following injections of Coley's fluid. The following is a brief abstract of the case:

> Patient, a woman, aged 45; no trauma; tumor of seven weeks' duration in the lower portion of the right humerus. Pain and weakness; no involvement of the joint; no fluctuation or egg-shell crackling; superficial veins prominent in one enlarged gland of the axilla. A radiograph showed a condition very characteristic of periosteal sarcoma. The tumor steadily increased under administration of potassium iodin, as shown by measurements and *x*-ray pictures. The toxins were begun in ½-minim doses and gradually increased up to 9 minims; continued from May until August, 1908, when the tumor had practically disappeared. The structural outline of the bone had become normal, as shown by the radiograph. Another radiograph, taken Feb. 1, 1909, showed the improvement to have continued.

To show the value of the use of the mixed toxins after operation, as a prophylactic against recurrence, the following case may be of interest:

Case 90.—*Summary.*—Periosteal round-celled sarcoma of the clavicle; excision; mixed toxin administered for a year; patient well thirteen months after operation.

History.—J. W., male, aged 34; trauma six or seven years ago, a plank striking on his left clavicle, nearly knocking him down. Father died of cancer of stomach. Patient noticed a swelling of the left clavicle Jan. 19, 1908; no pain; the tumor grew steadily in size. It was operated on by Dr. Maurice H. Richardson, of Boston, May 15, 1908; excision of entire clavicle. Dr. Richardson referred the patient to me for the toxin treatment as soon as the wound had healed, two weeks later.

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[6] Ashdown: Lancet, London, May 22, 1909.

Examination at that time showed an indurated area over the entire lower cervical region, which was suspicious of a return of the disease. The patient was put on the mixed toxins, which were continued by his family physician, Dr. Truworth of Dixmont, Me. The toxins were given in the pectoral region and the dose was gradually increased up to the point of causing a severe reaction. During the first four months they were given four times a week; then their frequency was gradually reduced until he received only one injection per week. At the end of one year he had had eighty-six injections; the largest dose was 30 minims. At the end of four months he had recovered his normal weight and strength and has been continuing his work ever since. Examination in June, 1909, showed the patient in perfect health with no trace of recurrence. In a recent letter Dr. Richardson states: "If the patient remains well I will give the toxins the entire credit. I shall hereafter use the toxins in all cases of sarcoma as a prophylactic after operation."

In a series of cases in which the toxins have been used systematically after primary operation for sarcoma, I have observed less than 25 per cent. of recurrences, whereas in cases not treated the average per cent. of recurrences has been above 75 per cent.

The facts I have set forth in the foregoing are sufficient, in my judgment, to justify the giving-up of the traditional method of treating all cases of sarcoma of the long bones by immediate amputation. In most cases I believe it safe to wait for two or three weeks, the time required for a trial with the toxins, before sacrificing the limb. Sarcoma cases of extremely rapid growth will probably show little or no effect from the toxins, and one might naturally say valuable time had been lost by the preliminary use of the toxins. It is my opinion, however, that early operation in these cases would not have been of the slightest avail, as shown by the long, almost unbroken list of recurrences and deaths in cases treated by operation alone. On the other hand, in certain cases—probably a small number—the limb will be saved by the preliminary use of the toxins. In those in which early improvement is not marked, operation can then be performed with even greater chances of ultimate success than if toxins had not been first used.

The greatest value of the toxins in sarcoma of the long bones will, I believe, be shown to lie in a judicious combination with conservative operative treatment. By such procedure a hip-joint amputation, which has been the amost uniform rule for sarcoma of the femur, will give place to an amputation below the trochanter, which will leave a stump of sufficient length to permit the wearing of an artificial limb, and this is no small gain. The toxins will be administered for a considerable period of time after amputation with the hope of destroying the cells which are left behind and which, with operative treatment alone, cause the local and metastatic recurrences. The same rules will apply to sarcoma of the humerus.

Coming to sarcoma of the tibia, fibula and radius and ulna particularly of the myeloid type, in place of amputation as formerly advised and still advocated by the great majority of surgeons, we can safely substitute either curetting or partial resection, followed by a thorough course of the mixed toxins. While good results have been obtained from operation alone in a very limited number of cases in this group, I am convinced that the number of successes will be greatly increased by combining the toxin treatment with conservative operation, as I have suggested, and my series of cases strongly supports this opinion.

As earlier diagnosis is steadily but surely coming, owing to increased knowledge of this disease coupled with more correct interpretation of x-ray plates and the use of earlier exploratory operations, the conservative treatment along the lines I have mentioned will soon show results much superior to those obtained by the radical and maiming operations thus far almost uniformly practiced.

5 Park Avenue.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BLOODGOOD, Baltimore: I cannot agree with some of the conclusions made by Dr. Coley. I am of the opinion that giant-cell sarcoma is relatively one of the least malignant of the sarcomas of bone and Dr. Coley should not include such tumors in the percentage of cures with his extracts. In the surgical pathologic laboratory I have a record of sixteen cases of medullary giant-cell sarcoma of bone. All the patients are well to-day. It is twelve years since the date of operation in the oldest case. In none of these patients was a serum employed. The operations have varied from curetting to amputation. During the same time there have been three cases of periosteal giant-cell sarcoma, one situated around the ulna, two near the head of the tibia. These patients have remained free from recurrence for from eight to twelve years. To these nineteen cases of giant-cell sarcoma of the long pipe bones I may be permitted to add about twenty patients with giant-cell sarcoma of the upper and lower jaw which have also remained well since removal. In addition, with the assistance of Mr. Schapiro, we have failed to find in the literature a case of pure giant-cell sarcoma which had given metastasis, and there are recorded cures even after two or more operations for recurrence. In the case of medullary giant-cell sarcoma in which I operated in December, 1902 (*Bull. Johns Hopkins Hospital*, May, 1903, vol. xiv, p. 133) the patient has remained free from recurrence up to date—six and one-half years.

The giant-cell sarcoma should not be included in any group of cases in which, in addition to operative measures, other treatment such as Coley's serum or the x-ray has been employed, and cures can be accomplished in this group by the most conservative means without the aid of any sera or the x-ray. The other forms of the less malignant sarcomas of bone are relatively less frequent than the giant-cell sarcoma. For example, I have observed but eight cases as compared with nineteen giant-cell sarcomas of the long pipe bones. To this less malignant group belong the periosteal osteosarcoma (three cases, two cures) the *chondromyxo-sarcoma* (four cases, two cures) and the periosteal fibrosarcoma—a recent case. But if we include tumors of this variety originating in the upper and lower jaw we can increase the number of osteosarcoma, myxosarcoma and fibrosarcoma by about ten cases, in all but two, of which the patient's have remained well; these two died from postoperative complications.

However, when we compare the results in the treatment of the more malignant periosteal and medullary sarcoma with and without the use of the Coley serum we find a great difference. In my experience and in the literature no one has accomplished a number of cures in the round-and-spindle-cell sarcoma equal to Dr. Coley. In view of Dr. Coley's experience I feel that his method of treatment should be tried in all these more malignant sarcomas, so that we may get quickly a large accumulated experience in the hands of numerous investigators. An observation like Dr. Coley's should receive confirmation. In regard to Dr. Coley's statement that a low *amputation* should be performed rather than a high one, if the serum is employed in addition to operation I would go further. Amputation is only indicated when the complete excision of the tumor would leave a limb without function. It is the extent of the local growth that justifies amputation.

It is a rather remarkable and suggestive observation, which has been commented on by many writers, that among the cures of the more malignant sarcomas of bone there have been about as many resections as amputations. In sarcoma of bone the cause of death is metastasis, not local recurrence. In regard to the question of exploratory incision, I do not see how it can be answered in more than one way. We must explore all early doubtful bone lesions. It would be unjustifiable to amputate or to resect without first ascertaining the nature of the lesion by an exploratory incision. For this reason surgeons who assume the responsibility should educate themselves to recognize either from the gross appearance or a rapid frozen section the nature of the different surgical diseases. The surgeon must be his own pathologist, just as will be demonstrated that in surgery of the chest he must be his own physiologist.

Dr. Arthur Dean Bevan, Chicago: I think that we ought to commend and congratulate Dr. Coley for the persistence with which he has pursued this subject and advocated the use of the mixed toxins in sarcoma. At times I have been very enthusiastic about them. I have employed them in thirty or forty cases and I have seen distinct and marked effects from their use, large masses of tumor tissue diminishing considerably in size. I want to say, however, that I have never seen a cure. I believe that has been the experience of a number of other surgeons who will agree with me that the use of these toxins is advisable in inoperable cases. Many hopeless cases come to us for relief and we ought to feel thankful that there is something which we can use which will give these poor people relief for a time at least. It is in these cases that the mixed toxins and other agents like the Roentgen-ray and radium should be employed. And yet when we come to analyze the results as presented, for instance, by Dr. Coley from the treatment of these tumors by operation and serum, or as presented by Dr. Bloodgood, where I imagine operation only was employed in the majority of cases, I am rather inclined to believe that we must come to this conclusion, that although the toxins offer a possibility of benefit, that possibility is distinctly small. If I were to present my impressions of the value of the toxins on the one hand and the value of operative procedure on the other where the two were employed in a given case I should say that the toxins offered about 1 or 2 per cent of possibility of permanent cure while the operation offered 98 or 99 per cent. Still I believe that the use of the toxins should be continued and it is possible that more permanent results and a larger percentage of good results may be obtained in the future.

Dr. Henry S. Wieder, Philadelphia: I believe a splendid opportunity would be lost if we did not call attention especially to the two cases which Dr. Coley referred to as cases of myositis ossificans. Is is important to differentiate this condition from sarcoma. I am especially impressed with this subject because of a case which came under my observation through the kindness of Dr. Rodman. The man had been on a jaunt, became intoxicated and apparently took part in a street brawl. When he recovered after two or three days he found that he had a sore thigh. He said that at the time there was some ecchymosis. He did not notice that there was anything else wrong nor that there was a fracture. After three or four weeks he presented himself for treatment of a tumefaction on the femur. The condition was not diagnosed immediately, but he was kept under observation for a while until he became restless and sought aid in another hospital, where he came under the care of Dr. Rodman. Dr. Rodman thought that the growth was a sarcoma, but not being altogether satisfied he made an exploratory incision and sent a small piece of the tumor to me for examination. I examined it and concluded that it was probably a proliferative osteitis, but I would not make a definite diagnosis from so small a specimen. However, as a result of my examination, Dr. Rodman performed a secondary operation. Portions of the growth, both deep and superficial, were removed, and we could find no evidence of sarcoma, but only a proliferative osteitis and also some muscle fibers. We were unable to say whether this was a case of myositis ossificans or whether it was the result of trauma during the previous operation. We were positive, that is was not a case of sarcoma. The man was sent home and as we have not heard anything more from him we may take no news for good news. These cases should cause us to be very careful in making a diagnosis, and we must never think of performing an amputation in doubtful cases without having first submitted a piece of the tumor mass to a thorough and careful microscopic examination.

Dr. John B. Roberts, Philadelphia: We must not forget the influence of Roentgen-ray treatment on sarcoma when given in large dosage. I have used Coley's toxins a considerable number of times in recent years, but I regret to say that I have never seen any benefit from their use. The Roentgen-ray, however, has given me some unexpected results. Recently I saw a large infiltrating sarcoma of the neck which I did not dare touch with the knife. Under Roentgen-ray treatment a considerable portion of it was absorbed and the remainder became surrounded with a fibrous-like capsule from which I have scraped away a mass of sarcomatous tissue. Dr. George F. Pfahler has done this work for me in an excellent manner, giving large doses of the Roentgen-ray. I do not know what will be the final outcome because the patient is still under treatment.

Dr. William B. Coley, New York: In replying to Dr. Bloodgood, the statistics of a single large surgical clinic, such as Bruns', extending over a long period of time (thirty-four years) give a much more accurate idea of the final results obtained in the treatment of sarcoma of the long bones than any collection of single cases found in the literature which are often reported because unusual. The fact is that Dr. Bloodgood referred to cases of sarcoma in various localities, while my paper is confined to a study of sarcoma of the long bones. He does not state how many cases of sarcoma *of the* long bones of the myeloid type he has known to have been cured by conservative treatment. My paper contains an abstract of all the cases of sarcoma of the long bones treated in Bruns' clinic during thirty-four years, 93 in number, in 65 of which the origin is definitely stated. While time did not permit me to read them I will now give a brief résumé:

There were 33 cases of myelogenous sarcoma of the long bones observed; 4 had to be excluded because they were either too far advanced for operation or operation was refused. Of the remaining 29, 17 patients were treated by amputation, 7 by exarticulation, 4 by resection and 1 by curetting. Of the 17 treated by amputation the end-results are known in 11 and of these 8 patients died of metastases, 5 within less than a year, 3 within from 2 to 5 years. Yet Dr. Bloodgood stated that he had never seen a case of giant-celled sarcoma followed by metastases. All of the 7 patients on whom exarticulation was performed died either in direct consequence of the operation or of recurrence within a short time after operation. Of the 5 patients conservatively treated 3 remained well, 3, 17 and 27 years respectively. Of the 32 patients with periosteal sarcoma of the extremities 3 had to be excluded for various reasons, leaving 29, in 25 of whom amputation was performed, in 2 exarticulation and in 1 each resection and excochleation. Only 4 remained well over 3 years after amputation. That the final results in the two classes of cases were not so strikingly different is shown by the fact that in the myelogenous group there were 5 in 29 patients who remained well over 3 years; in the periosteal 4 in 29 cases. My statistics, based on 94 personal observations, confirm the results obtained at the Bruns clinic. These cases (which will be published in the paper itself) represent the most malignant types of sarcoma, many of them periosteal, none of them pure giant-celled sarcoma in the true sense of an encapsulated endosteal tumor. I have never recommended the toxin treatment as a substitute for operation. At first I advised the method only in hopeless, inoperable cases, but later, after its value in such cases had been fully proved, I extended its use to a preliminary course in cases of sarcoma of the extremities, in which operation meant the sacrifice of the limb. The fact that a limb was saved by such preliminary treatment in fourteen cases would seem sufficient ground for adopting it as a routine measure. The subject of my paper is really: "A Plea for More Conservative Methods in the Treatment of Sarcoma of the Long Bones" and Dr. Bloodgood fully agrees with me in the main point; he even goes further in advising conservative methods also in the periosteal group of cases. While there will probably always be some people who will try to explain the successes from the use of toxins in inoperative sarcoma on the ground that the diagnosis was wrong and that the cases recovered spontaneously, the number of successes at the present time has been so great that such explanation can hardly receive serious consideration. Besides, spontaneous cures in carcinoma or sarcoma are so exteremely rare that there are probably few in the audience who have ever seen a single authentic case. I have cited examples of some of the most desperate cases of inoperable sarcoma, in which the diagnosis was confirmed by the most competent pathologists, which strikingly improved coincident with the beginning of the administration of the toxins and went on to a complete cure, the patients remaining well for many years thereafter. I have thus far had 52 patients with sarcoma, inoperable and hopeless as far as surgery was concerned, which were successfully treated with the toxins; of these 35 have remained well from 3 to 15 years and I think that over 100 have been successfully treated by other surgeons. In 3 or 4 cases in which the tumor had disappeared and the patient had remained well for a considerable time, the growth returned and caused the death of the patient. These cases are perhaps most important of all, inasmuch as they absolutely establish the correctness of the diagnosis.

THE CLINICAL USE OF PHENOLPHTHALEIN *

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The clinical use of phenolphthalein, so far as our present knowledge goes, is that of a purgative, and as such it is a valuable and efficient remedy. It is a yellowish powder, being soluble in alcohol and in aqueous solutions of hydroxids and carbonates, and but very slightly soluble in water. Phenolphthalein is a definite chemical compound, belongs to a class of bodies known as phthaleins, and is obtained by the action of phenol on phthalic-acid anhydrid. It is colorless in acid solutions and red or pink in alkaline liquids, and, owing to its characteristic color with alkalies, it has long been used by chemists and clinicians as an indicator of alkalinity in determining the acidity of gastric contents, urine, etc.

Its introduction into therapeutics was accidental in that it had been used in artificial Hungarian wines to prevent their substitution for the genuine wines. Individuals who drank the wine soon suffered from diarrhea, and the diarrhea continued as long as the wine was consumed. This led to a careful examination of phenolphthalein with regard to its action on the bowels, and it was clearly demonstrated by Vámossy that it invariably acted as a purgative. Following these observations, it was introduced as a proprietary remedy under various names: "urgen konfect," "paraphthalein," "purgatol," "purgatin," "purgo," "purglets," "purgella," "purgolade," "purgylan," "laxiconfect," "laxine," and "el zermac."[1]

Vámossy[2] explains the *modus operandi* of phenolphthalein as follows: The probability is that in the acid medium of the stomach it remains unchanged, but on reaching the intestines it becomes converted into its sodium salt, which is more soluble and more active than phenolphthalein itself. This salt is, according to the observations of Vámossy, possessed of a low power of diffusion; and this property explains the purgative action of the substance in that, being indiffusible, its presence in the intestine occasions a high osmotic pressure, and consequently a copious accumulation of fluid in the intestine.

Ott and Scott[3] report the result of their study of the effect of phenolphthalein on peristalsis in cats and dogs. They used two methods: one with the Cambridge intest[illegible] and Dr. Schlayer's (Tübingen) [illegible] The second method was that of Dr. Magnus, of Heidelberg. An injection of the drug into the jugular vein showed by the plethysmograph that peristaltic contractions of the intestines *were increased in number and also in strength.* With the excised intestines immersed in a modified Ringer solution, after the addition of phenolphthalein, a decrease in the tonus of the intestine was noted, while the force of the peristaltic movements was greatly increased. These writers explain the action of phenolphthalein on intestinal peristalsis as being either "on the unstriped muscle or the reflex center of peristalsis—the plexus of Auerbach." Ott and Scott also state that it is possible that phenolphthalein has some effect on the nervous plexus; further, they say: "As the intestinal movements are largely due to the unstriped muscular fiber itself, we are inclined to believe that this drug acts mainly on the unstriped muscular fiber in producing peristalsis." Vámossy found that the purgative action of phenolphthalein was much more marked in man than in animals, and he believed this to be due to the fact that in animals the conversion of this substance into its sodium salt either does not take place at all, or only to a very slight extent.

The effect of phenolphthalein on blood-pressure was also studied by F. W. Tunnicliffe, Ott and Scott, and others, and shown to have a slightly depressant action on the circulation, but not so much as magnesium sulphate. The drug does not appear to possess any other physiologic property than that of a purgative.

It was thought that the drug was capable of acting in jaundice, but its effect seems to be due to its purgative action only; it apparently has no influence on the flow of bile. Nor does it seem to irritate the kidneys; it may, therefore, be administered as a cathartic in cases with renal disease. I have used it a number of times in cases of interstitial nephritis without any ill effects. Tunnicliffe used it in patients suffering from albuminuria without any increase in the albumin in the urine.

According to Vámossy and Tunnicliffe, phenolphthalein does not appear in the urine unless very large doses have been taken. Its presence in the urine is easily demonstrated by taking some urine and adding an alkali—sodium hydrate; in the presence of phenolphthalein the urine becomes at once either rose-red or purple, depending on the quantity of phenolphthalein present.

Tunnicliffe says that phenolphthalein is not excreted in the urine to any extent, either as such or as an immediate derivative; he says further that this observation confirms that of Vámossy, who also found no increase in the aromatic sulphates of the urine after the administration of this drug.

Vámossy did find, however, that a very large amount of phenolphthalein, 87.17 per cent. of the ingested quantity, appeared in the feces. The presence of phenolphthalein in the feces can be demonstrated by adding a small quantity of alkali to the stool. The feces will quickly develop a purple color. The reaction will continue to be present for two or three days after the administration of a large dose of the drug, but it usually disappears with the cathartic effect of the drug.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Department of Therapeutics, The Journal A. M. A., March 30, 1907, xlviii, 1133.

[2] Vámossy: Ueber neues Abführungsmittel, Therap. d. Gegenw., May, 1902; quoted by E. W. Tunnicliffe, Brit. Med. Jour., Oct. 18, 1902, p. 1224.

[3] Ott and Scott: Med. Bull., March, 1908.

It was also believed that the quantity of this substance absorbed into the body when it is administered by the mouth was a negligible quantity; but we know now that the drug must be absorbed more readily than formerly supposed from the fact that poisoning has occurred after the administration of 15 grains.[4]

Clinical experience has confirmed the early investigations of Vámossy, Dornblüth, Tunnicliffe, and others, which show that phenolphthalein is a safe cathartic. It usually acts without pain in about six hours, and it is not followed by a tendency to sluggishness of the bowels. I have had a few patients in whom the administration of the drug was followed by griping, but this, I believe, is more attributable to the idiosyncrasy of the patient than to any irritating effect of the drug. In those cases I added a small dose of belladonna to the phenolphthalein. One must also bear in mind that, while this is an excellent cathartic and that it usually produces purgation, some patients do not respond to its administration. Constipation, of course, requires other treatment besides the giving of drugs. Tunnicliffe states that the drug does not lose its effect when administered over a prolonged time. This does not agree with my experience; in several cases the bowels responded by free purgation when the drug was first given, but later even an increase in the dose was without effect. These latter instances are, however, not common and the administration of the drug is usually followed by satisfactory results. The drug may be prescribed in powder, pill or capsule. It is easily obtained, almost tasteless and not expensive, and some drug manufacturing companies put it up in the form of 1-, 2-, and 3-grain tablets. The dose for adults is from 1 to 5 grains. It is well to begin the treatment by prescribing a small dose, which may be increased to meet the requirements of the individual case. A dose of 3 or 5 grains (19 to 32 cg.), one, two or three times a day, will purge the average patient. The larger dose may be necessary in patients with obstinate constipation. To adults with a moderately severe constipation I give a prescription as follows:

℞.	gm.
Phenolphthalein	4| or ʒi

Div. in capsulæ No. xii.
Sig. One capsule three times a day.

I prefer to give the drug put up in capsules. If the taking of three capsules a day causes too free purgation, the dose may be reduced to one capsule at bedtime. Some patients do very well by taking a 5-grain capsule every two or three days. For these latter cases it is better to give a smaller dose; that is, one or two grains at night. If the administration of 5 grains three times a day does not produce the desired effect, I prefer to give another purgative in addition to the phenolphthalein.

Tunnicliffe recommends as high as 15-grain (1-gm.) doses in cases of obstinate constipation, but, in view of the fact that a dose of 15 grains produced poison, a dose of that size is too large. I think that 5 grains is as large a dose as it seems safe to give a patient, especially as some patients possess an idiosyncrasy to phenol preparations.

Tunnicliffe has used the drug in children from two months to seven years of age, also in babies. Babies under eighteen months were given from ¾ to 1½ grains (0.1 to 0.05 gm.) pulverized in one or two teaspoonfuls of milk at night. I have not prescribed the drug for children. If I were to prescribe it for children, however, I would begin with a small dose, say half a grain, given at night.

My experience with the drug, aside from using it in the clinical laboratory, has been in its clinical use, and this in the treatment of constipation in adults. It has usually given satisfaction, and its administration was followed by soft-formed stools; whereas the use of a number of other purgatives in these patients gave very unsatisfactory results. In a few patients whom I have treated, the prolonged use of phenolphthalein was followed by diarrhea, in some instances lasting several days after the drug was discontinued; in other cases (and these patients had formerly suffered from constipation) the diarrhea lasted for a period of upward of a week or until the diarrhea itself was treated. Owing to this effect, two patients could not take the drug for subsequent attacks of constipation.

There is no doubt that in phenolphthalein we have a valuable purgative, and I wish to take this opportunity to recommend it to the United States Pharmacopeia Committee for adoption as a drug. A number of the manufacturers are sampling to the physician and are doing their best to have trade-marked preparations of the drug fall into the hands of the public so that the patient may purchase the remedy over the counter. In view of this fact, I would also recommend that physicians, in prescribing this remedy, write for it under its proper name—"phenolphthalein"—and not by one of the many proprietary names.

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[4] Department of New and Nonofficial Remedies, The Journal A. M. A., April 20, 1907, xlviii, 1351.

SUBCUTANEOUS PURGATIVES

A CLINICAL STUDY ON PHENOLTETRACHLORPHTHALEIN *

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Since the introduction of the hypodermic needle by Alexander Wood of Edinburgh in 1853, a constant and growing tendency to rely more and more on the subcutaneous method of administering drugs has existed because of the fact that this method insures more complete and more rapid absorption and more accurate dosage.

Medicine stands in need of a subcutaneous purgative. The physician and surgeon alike have recognized its necessity. Pharmacologists and experimental therapeutists have repeatedly attempted to supply this demand, turning successively to the salines, to the vegetable purgatives, and to the alkaloids. But still the need is felt, for no preparation suggested has as yet fulfilled the numerous requirements demanded of it. Such a body must act on the intestinal tract and on the intestinal tract only without any untoward effect on any other organ or system, must act with certainty, must be readily soluble, preferably in water, in order that the amount of fluid to be injected may be small, and it must be nonirritant locally. As a rule it should produce its effect within a short time, although in some conditions an action delayed in onset but prolonged in character is to be preferred.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

In this connection it is interesting to review the literature dealing with the subcutaneous and intravenous administration of the saline purgatives. Aubert[1] stated in 1851 that intravenous injections of sodium sulphate produce purgative effects. Claude Bernard[2] made a similar statement in 1857 and Headland[3] in 1859, though neither of the last writers gave any experimental proof for his claim. Buchheim,[4] Wagner,[5] and Hay[6] concluded, after a considerable amount of experimentation, that sodium sulphate exerts no purgative action if given intravenously or subcutaneously, and this has been the conclusion of practically all investigators in this field until the appearance of a paper by J. B. MacCallum,[7] which created a new interest in this subject.

MacCallum introduced solutions of the various salines into the veins or under the skin of rabbits, and then studied the effect on movements of the intestines either by observing the movements of intestines through the opened abdominal wall or by observations made on these animals confined in separate metabolism cages. He concluded that all those salts which act as purgatives when introduced into the stomach or intestines have the same action when injected subcutaneously or intravenously. He also stated that barium chlorid possesses this purgative property to the greatest degree, but all of the other salines possess it to a less degree, that the purgative effect is produced by increased secretion as well as increased peristalsis, and that the purgative effect can be counteracted or abolished by calcium chlorid.

Auer[8] investigated in the same field, but could not obtain MacCallum's results, and claimed that in his experiments sodium citrate used intravenously caused constipation, while magnesium sulphate inhibited intestinal movements.

Bancroft[9] repeated MacCallum's work and stated that sodium citrate or barium chlorid subcutaneously and sodium sulphate intravenously act as purgatives, but that it is easier to produce fluid feces by administering sodium sulphate or sodium citrate by mouth.

Eckardt[10] gives an excellent review of the work done in this field up to 1905 and presents also the results of his own experiments, which conclusively prove that the salines will not furnish us the sought-for subcutaneous purgative.

Although these investigations are of academic and scientific interest, they help to throw some light on the method of action of salines, and, although intestinal peristalsis is undoubtedly increased by some at least of these salts, yet the increase in activity is not sufficiently marked to result in purgation unless toxic or lethal doses are injected. The salines, therefore, are of no practical importance to medicine as subcutaneous purgatives.

Barium chlorid, however, will produce purgation administered either subcutaneously or intravenously, and it is frequently used as such by veterinarians, 1 gm. being sufficient to purge a horse weighing 1,000 pounds. But barium is the most poisonous of the alkaline earths and it affects many organs. It accelerates the heart, enormously raises blood-pressure, and in large doses, besides purging, causes vomiting and sometimes tonic and chronic convulsions. The widespread nature of its activity and its toxicity preclude its general adoption in this field.

VEGETABLE PURGATIVES ADMINISTERED SUBCUTANEOUSLY

Similar investigations have been carried on with the vegetable purgatives, aloes,[11] colocynth and cathartinic acid having been tested. Hiller[12] regards colocynthin as the most suitable for this purpose. No doubt can exist as to their efficacy when so used, but all these bodies are strongly irritant and the local reaction at the point of injection is frequently extremely severe. They cannot be used in this way except in very exceptional instances where the indications are imperative, and then only with a grave possibility of sloughing occurring at the point of injection.

An effort was made to see if croton oil greatly diluted could be used subcutaneously. Two drops of croton oil were added to 5 c.c. of olive oil and under aseptic precautions introduced beneath the skin of a dog. On the following day a painful swelling was found at the point of injection. This increased in size, became very tender, and persisted for several days. No evidence of an action on the intestine was noted until the fifth day, when a large amount (100 gm.) of fluid feces was passed. The stools remained soft for three days and then returned to a normal consistency.

An experiment with castor oil yielded a very similar result. A dog was injected with 25 c.c. of sterile castor oil on December 12. No purgative effect was obtained until December 18, but this was so slight in degree that it was doubtful. A large painful swelling occurred at the point of injection, which persisted until December 21. It is scarcely possible that any serviceable subcutaneous purgative will be obtained from this class of drugs.

APOCODEIN

The work done with apocodein, however, has been more fruitful. This is an alkaloid corresponding in derivation to apomorphin from morphin, obtained by dehydrating codein. It was first carefully studied by Guinard.[13] He noted that it produced no nausea or vomiting, and following its administration he observed the increased peristalsis through an open abdominal wall. Murrel[14] used it as an expectorant in 1891, Toy[15] as a sedative in maniacal cases in 1895. Combemale[16] introduced it as a purgative by mouth in 1900. He interested Raviart and Barton,[17] who in the same year administered it subcutaneously in 34 cases of constipation with very encouraging results. Giraud,[18] 1903, used it in 8 cases of constipation, also with satisfactory results. In the same year Heinze[19] tested it in a series of 30 cases of constipation. He had 47 per cent. of successful cases and in 53 per cent. it utterly failed. From his experience he concludes that apocodein is unsatisfactory in that it is uncertain in action, but admits that it works very well in many instances.

The dose of this drug is small, .02 gm. of the hydrochlorate being usually sufficient, while .05 gm. is the maximal dose. Most of the writers claim that the first evacuation follows shortly after the administration of the injection, frequently within one to two hours.

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1. Ztschr. f. rat. Med., 1852, ii, 225.
2. Substances Toxiques et Medicamenteuses, 1857, p. 85.
3. Action of Medicines, 1859, p. 459.
4. Arch. f. physiol. Heilkunde, 1854, xiii, 217.
5. Inaug. Diss., Dorpat, 1853.
6. Jour. Anat. and Physiol., xvi, 243.
7. Am. Jour. Physiol., x, 101.
8. Am. Jour. Physiol., xvii, 15.
9. Jour. Biol. Chem., iii, 191.
10. Inaug. Diss., Giessen, 1905.
11. Hans Meyer: Arch. f. exper. Path., xxviii, 186.
12. Ztschr. f. klin. Med., iv, 480.
13. Lyon méd., 1893, pp. 21 and 23.
14. Brit. Med. Jour., 1891, i, 435.
15. Semaine méd., 1895, p. 346.
16. Semaine méd., 1900, p. 422.
17. Echo méd. du nord, December, 1902.
18. Thèse de Lyon, 1903.
19. Psychiat.-Neurol. Wchnschr., 1903-4, v, 297.

Heinze, however, states that the average time is from ten to twelve hours.

The objections to apocodein are worthy of consideration, for it certainly does not represent the ideal subcutaneous purgative as outlined above. According to Dixon[20] it lowers the blood pressure, dilates the arterioles, increases peristalsis by its sedative action on the inhibitory ganglia of the sympathetic system, increases the rate of the heart beat, and increases nerve reflexes. Its actions are too numerous and complex and involve too many symptoms. Unfortunately, although readily soluble in water, it is irritant, locally, many of the patients having complained of pain and an abscess having followed its use in one case. Its action is also short in duration, constipation usually returning in a day or two.

Notwithstanding these drawbacks apocodein is, however, a serviceable hypodermic purgative. Personal experience has been limited to animal experimentation. On one occasion an evacuation of the bowels followed within an hour of the injection of 0.04 gm. subcutaneously in a dog. In other instances movements occurred within ten or twelve hours, but the stools were not soft and no prolonged action was obtained.

ESERIN

Eserin or physostigmin has also been investigated. Dickerhoff[21] first suggested its use, and since then it has been tried clinically by many investigators, von Noorden,[22] Packard,[23] Pankow,[24] Craig,[25] Jewett,[26] particularly by surgeons and obstetricians. It is not given solely for its purgative effect but most frequently to prevent or overcome intestinal paresis following surgical operations, or to overcome intestinal atony following parturition, or to expel gas from a distended intestine. Craig has used it extensively, and he administers it immediately after opening the abdomen provided no contraindication presents itself. He claims that it is of more value in preventing or warding off threatened intestinal paresis than it is in curing this condition when once established. He advises large doses, 1/35 gr. of the acetate administered early subcutaneously, and he regards this as essential for successful results, attributing Pankow's lack of results to the smallness of the dose utilized. Jewett's results confirm those of Craig. But all these authors find that though preventing paresis eserin is not always sufficient to produce purgation, thus rendering necessary the administration of other purgatives by mouth.

Eserin is an exceedingly powerful alkaloid and must be handled judiciously. Undoubtedly it has its place when used in conditions described above, but it is not of wide practical application and will never come into general use alone as a subcutaneous purgative.

SODOPHTHALYL

Fleig[27] in a recent publication states that he has prepared a soluble salt of phenolphthalein which he has named sodophthalyl, and which according to his account is being used successfully as a hypodermic purgative in the clinics in Montpellier. His account of the mode of preparation and of the chemical properties of this derivative are so exceedingly meager that no definite idea of its chemical constitution can be formed. I assume here that it is the disodium salt of phenolphthalein which has also been described by Meyer and Marx,[28] and which is made by the addition of sodium hydroxid to phenolphthalein. This salt is very soluble, and, being a combination of a very weak acid with a very strong base, it is readily hydrolizable and acts like a solution of the alkali itself; that is, it is decidedly irritant.[29] It is with great interest that we await the report of the therapeutic application of sodophthalyl in the clinics of Montpellier; and if this substance is identical with the disodium salt of phenolphthalein, it is difficult to see how it can be used on account of its irritating effect at the point of injection.

In April, 1908, Abel and Rowntree[30] started an investigation of the phthalein group with particular reference to the excretion, the absorption, and the purgative action of different members of this family, and also as to the effect of substitution of different parts of the phthalein radicle on the pharmacologic action of the drug.

It was proved that olive oil when heated would dissolve phenolphthalein and many of its derivatives, and that this oil preparation possessed some value as a purgative when injected beneath the skin of dogs. But it was soon observed that more prolonged purgative action was obtained when phenoltetrachlorphthalein was employed than when any other phthalein at their command was used.

METHOD OF PREPARING OIL SOLUTION

The solution of phenoltetrachlorphthalein employed throughout this investigation is prepared in the following way: Neutral olive oil is slowly heated to 210 C., and when this temperature is reached finely powdered phenoltetrachlorphthalein is added with stirring. The heating is continued for not longer than five minutes and the temperature is not allowed to exceed 220 C. In order to remove any traces of foreign matter or undissolved phthalein, the oil solution is filtered hot into sterilized flasks and set aside for use. Olive oil thus treated will dissolve the chlor body to the extent of about 0.2 gm. to every 10 c.c. of oil, while it will dissolve phenolphthalein itself to a slightly greater extent at a slightly lower temperature.

Analytical experiments were made which show that no appreciable saponification of the oil takes place during this procedure. Nevertheless, in order to lessen the risk of saponification, the custom was adopted of preparing only 40 c.c. of such a solution at a time, though doubtless larger volumes of the solution might be prepared at one operation.

Phenolphthalein exhibits a greater tendency to come down out of such a solution, but a properly prepared solution of the chlor body will stand some days without any precipitation whatever.

ABSORPTION, EXCRETION AND MODE OF ACTION

Before entering on the report of the clinical application of this substance a few words concerning its absorption, its fate in the body, its channels of excretion and its mode of action will not be out of place.

Practically all the drug is absorbed from the local seat of injection into the general circulation in from sixteen to twenty-four hours. It appears in the bile in the conjugated form, and later in both the free and conjugated condition, and continues to be excreted in the bile of a biliary fistula dog for from forty-eight to seventy-two hours and in the feces of a normal dog as long as five and six days. Part of the drug is reabsorbed again from the large intestines, and the purgative action produced is consequently very prolonged in nature. No traces of the drug can be detected in the urine; it thus differs from phenolphthalein, which after being injected under the skin escapes to a considerable degree by way of the kidneys.

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[20] Jour. Physiol., xxx, 97.

[21] Wchnschr. f. Thierh. u. Viehz., 1882, xxxvi, 309.

[22] von Noorden: Berl. klin. Wchnschr., 1901, p. 1057.

[23] Philadelphia Med. Jour., May 24, 1902.

[24] Zentralbl. f. Gyn., June, 1904.

[25] Am. Jour. Obst., April, 1904. Am. Jour. Obst., September, 1904. New York Med. Jour., 1905, lxxxi, 527.

[26] Brooklyn Med. Jour., xix, 42.

[27] Arch. internat. de pharmacod. et de thérap., xviii, 327

[28] Ber. d. deutsch. chem. Gesellsch., 1908, xli, 2446.

[29] In animal experiments Abel and Rowntree used the disodium salts of both phenolphthalein and its tetrachlor derivative for injecting subcutaneously in dogs. Irritation, infiltration, and sterile abscesses followed in many of the animals so that these preparations were abandoned.

[30] Abel and Rowntree: Jour. Pharmacol and Exper. Therap., 1909, i, 231.

After a prolonged period of experimentation in a series of forty injections in dogs it was learned that injections of this body in neutral olive oil were not followed by any untoward results either locally at the point of injection or systemically, and that no system other than the alimentary was influenced by this substance. Its introduction into the dispensary and wards of the hospital for further investigation was therefore considered justifiable and advisable. A study to determine its clinical value was accordingly undertaken at the suggestion of Dr. Abel.

ADMINISTRATION TO OBSTETRICAL PATIENTS

The first series of injections were made in the obstetrical wards by the permission of Dr. Williams and with the kind assistance of Dr. Storrs. The cases represent women in the puerperium, some of whom received the injection in place of the usual initial purgative, while others received it when a purgative was indicated later during the lying-in period. This table also includes the result of one injection of 12 c.c. of the oil preparation given to a dispensary patient (No. 3, Mrs. R.). This case is included here because of the smallness of the dose administered.

Subcutaneous Injections of Phenoltetrachlorphthalein

Dose.	Patient.	Day of injection.	Days following injection. 1	2	3	4	5	6	7
Patients receiving 0.2 gm. in 10 c.c. of oil.	1 Mrs. H.		1	0	1	0			
	2 Mrs. A.	1	2	0	0	1			
	3 Mrs. R.		1	1	1	0	1	0	1
Patients receiving 0.3 gm. in 15 c.c. of oil.	4 Mrs. A.		1	2	0	1	2	2	2
	5 Mrs. C.		3	1	0	1	1	0	1
	6 Mrs. F..		0	1	0	1	1		

These results are not entirely satisfactory, but in the light of later experiences this is thought to be due to the fact that the dose administered was too small, and probably had the dose been larger the results would have been correspondingly more favorable. However, a decided laxative effect was obtained. The stools became softer and in some instances semifluid or of the consistency of a porridge, and in one instance contained the drug as late as the fifth day. In none of the cases did local irritation or inflammation follow the injection, nor were griping pains or colic complained of by any patient at any time following the administration. The urine and the milk were collected from the mothers, but no drug could be detected in either secretion.

A glycerin suppository was given at the end of thirty-six hours when necessary for the first movement, and repeated if thirty-six hours again intervened without an evacuation.

RESULTS OF ADMINISTRATION TO DISPENSARY PATIENTS

The results just presented, though not entirely satisfactory, were, however, sufficient to justify a further investigation as to the value of this subcutaneous laxative, particularly in view of the prolonged nature of the action exerted throughout a period of several days.

The patients, indicated on the table presented below, were selected cases of chronic constipation obtained from the medical dispensary of the Johns Hopkins Hospital through the courtesy and assistance of Dr. McCrae and the other members of the dispensary staff. Only male patients were selected in whom the symptom "chronic constipation" constituted the chief cause of complaint. This symptom varied in the different individuals to all degrees of severity, and had persisted for periods varying from weeks to twenty years. Many of the patients had been returning to the clinic for months or years, never having a bowel movement without resorting to drugs. Some responded well to daily doses of cascara, to pills, or to various forms of teas, while others had derived little or no benefit from any form of previous treatment.

Under aseptic precautions each of these patients was given 0.4 gm. of phenoltetrachlorphthalein, 20 c.c. of the freshly prepared oil preparation, subcutaneously in the gluteal region. Each one was also supplied with two glycerin suppositories and was asked to follow these rules: (1) Drink water freely; (2) eat some fruit each day; (3) take walking exercise every day; (4) go to toilet night and morning and stay five to ten minutes if necessary; (5) use a glycerin suppository at the expiration of thirty-six hours if the bowels have not moved, and use the other suppository later if thirty-six hours again pass without an evacuation.

Patients Receiving 0.4 Gm. or 20 c.c. of Oil Preparation

Patient.	Day of injection.	Days following injection. 1	2	3	4	5	6	7	2d week.	3d week.	Final result.
7 M. K.	..	1	1	1	0	1	1	..	..	..	Constipation returned.
8 H. C.	1	1	2	1	1	1	1	1	4	3	Constipation returned.
9 J. C.	..	1	2	1	2	1	1	2	7	7	No return of constipation.*
10 I. B.	..	1	0	1	1	1	2	1	8	7	No return of constipation.*
11 J. S.	..	1	1	1	1	2	1	1	4	3	Constipation returned.
12 H. G.	1	2	2	3	2	2	2	1	7	7	No return of constipation.*
13 J. L.	..	0	0	0	..	..	..	..	..	..	No effect.
14 I. W.	..	1	1	2	0	1	0	1	3	2	Constipation returned.
15 L. L.	..	2	1	0	1	0	1	..	3	3	Constipation returned.
16 J. S.	..	1	1	0	1	1	0	1	12	8	No return of constipation.*
17 L. K.	1	1	0	1	1	1	0	1	6	7	Constipation returned.
18 J. B.	..	3	1	1	1	1	0	1	7	7	No return of constipation.*
19 F. T.	1	1	0	1	1	1	1	1	5	6	No return of constipation.*
20 †	1	2	2	2	2	2	2	0	..	..	Result not known.
21 O. N.	..	1	1	1	1	1	1	1	..	..	Constipation returned.
22 J. W.	1	1	1	1	1	1	1	1	7	7	No return of constipation.*
23 W. H.	..	1	2	2	1	..	..	..	..	..	No return of constipation.*
24 B. W.	1	2	2	3	Took cascara						....
25 L. M.	..	1	1	0	0	..	..	..	..	..	Constipation not relieved.
26 A. B.	1	2	1	1	1	1	1	2	8	8	No return of constipation.*
27 J. W.	..	2	2	2	2	2	2	1	14	14	Constipation returned.
28 W. B.	..	0	0	0	..	..	..	..	..	..	No effect.
29 W. B.	1	1	1	1	1	1	1	1	7	7	No return of constipation.*
30 J. J.	..	1	1	1	0	0	..	..	..	..	....

* No return of constipation after periods varying from two to six months.

† Dr Rosenthal's patient.

One of the most striking phenomena revealed by the study of this table is the prolonged nature of the action produced by this drug. It is not claimed that one injection will produce purgation for more than four or five days, but that it will do this, and that without the aid of psychotherapy, has been proved by numerous experiments on dogs.

It was hoped that the success attending the observance of the hygienic and dietetic rules outlined above, during the period in which daily movements of the bowels were being induced by the chlor body, would encourage the patients to continue in the observance of these rules, and that they would thus obtain a permanent cure without further resort to drugs. This was realized in ten patients out of the twenty-five cases of chronic constipation. That the total results recorded during the first week following injection are not due to psychic, hygienic and dietetic treatment is proved by the fact that many of these same patients were old dispensary cases who had probably had the same suggestions and advice on numerous previous visits as well as by the similar results, already mentioned, which were obtained in animals.

It is very evident that phenoltetrachlorphthalein is not an ideal purgative. Several serious objections at once present themselves:

1. The insolubility of this drug in water.
2. The slight degree of its solubility in oil necessitating a large volume for injection.
3. The long time elapsing before the onset of its laxative action, which appears usually eighteen to twenty-four hours after administration of the drug.
4. The mild character of its action, which is rather laxative than purgative.

At the same time several redeeming features which make this substance of peculiar value must not be overlooked:

1. The prolonged nature of its action.
2. The absence of crampy pains and colic throughout the period of its action.
3. The constancy, at least in the cases so far studied, with which it has produced results.

Phenoltetrachlorphthalein, then, is efficient, non-toxic and non-irritant when administered as a subcutaneous purgative, but its insolubility in water and its low solubility in oil stand in the way of its wide application as such in practical therapeutics but do not detract from its efficiency when a subcutaneous purgative is indicated. It may prove of considerable value in certain conditions, as (a) in coma; (b) in marked gastro-intestinal irritability which contraindicates the administration of a purgative by mouth; (c) among the insane, who often refuse to take any medicine by mouth and who fight vigorously against the administration of enemata; (d) in certain cases of chronic constipation, combined with hygienic, dietetic and psychic treatment.

Phenoltetrachlorphthalein is worthy of a trial in the field of abdominal surgery, when its introduction beneath the skin can be accomplished during the anesthesia without any pain whatever, where its mild prolonged laxative effect, e. g., a soft daily stool, starting on the day following the operation and continuing for a period of from four to six days, may possibly entirely dispense with the necessity of administering any other purgative by mouth during the first week subsequent to the operation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GILBRIDE AND ROWNTREE

DR. H. C. WOOD, JR., Philadelphia: Dr. Gilbride referred to a case of poisoning following injection of 15 grains of phenolphthalein. I would like to know whether he ever succeeded in tracing the authority for this report. I believe that Schwartz states that phenolphthalein is a compound of phenol and therefore a poisonous body. It is, however, a pure assumption that the phenol radicle will be liberated in the body; on the contrary, it seems to be a very stable compound and escapes through the kidney unchanged. I have injected intravenously into dogs doses equivalent from 60 to 100 grains in the human being without causing toxic symptoms; so I think we are justified in concluding that the drug is perfectly safe, except possibly in so far as some slight irritation of the kidney might follow its prolonged use. Dr. Gilbride quoted some authorities who believed that the action was due to a heightening of the osmotic function and a diffusion toward the intestinal tract. Others believed that because it acted, when administered hypodermically, it increased peristalsis. The evidence is strong against increase of peristalsis. My own experiments on dogs, and the fact that it does not gripe, both go to show that it does not have much effect on peristalsis. I have injected it into isolated loops of intestine in the dog and found practically all the phenolphthalein two hours later, showing that it is not absorbed to any great extent. I found that there was always a determination of fluid to the loop into which the phenolphthalein was injected and I conclude the action of phenolphthalein is a direct stimulation of the intestinal gland and consequent increase of the intestinal secretion.

I have observed one other fact, which is of practical importance; that is, an apparent great variation in the specimens of phenolphthalein. I have seen patients obtain phenolphthalein from one manufacturer and continue for two or three months to take half-grain doses with perfect satisfaction and then obtain another bottle and find that it takes three or four grains to obtain the same effect. This suggests that there is a great difference in the quality of the phenolphthalein of different manufacturers.

DR. L. G. ROWNTREE, Baltimore, Md.: So far as toxicity is concerned I cannot believe for a moment that 15 grains of pure phenolphthalein ever poisoned anybody. As Dr. Wood states, large doses can be introduced intravenously. Dr. Abel and I introduced enormous doses in our experimental work and never saw any effect except purgation. Tunnicliffe's observation on the depressive effect on the circulation we cannot bear out. We obtained a slight rise of blood-pressure following intravenous administration which continued for some time, probably a rise of 10 to 15 mm. In regard to the effect on animals as compared with the effect on man, many of the previous writers have pointed out the difficulty of purging animals. We could not purge rabbits, but we satisfied ourselves that we could purge dogs. Mention has also been made of the influence on flow of bile. There is no influence on the flow of bile, or any other secretions, intestinal secretion excepted, so far as we could make out in our studies. Its appearance in the urine is very constant after subcutaneous injection. This is markedly different from its tetrachlor derivative. This does not appear in the urine, no matter how large the dose. In connection with impurity of the drug we have had no experience. Our standard was Kahlbaum's.

DR. REID HUNT, Washington, D. C.: Professor Cushny, in discussing the origin of drugs, said that in the last forty years every new drug, with one or two exceptions, had come from a definite method of study and by experiments on animals. Only the antiseptics and purgatives had come in by direct clinical observation. It seems now that in the case of purgatives also the experimental method, the method pursued by Dr. Rowntree, is going to be of great value. Whether this tetrachlorphthalein is the purgative for which surgeons and physicians have been looking so long, Dr. Rowntree is certainly on the right track. I do not wish to disparage the contributions that manufacturers have made to the materia medica, but it is gratifying to know that the object of Dr. Rowntree's study was science. Dr. Rowntree has nothing to sell. His paper is the contribution of science. It is to be hoped that other pharmacologic laboratories will take up similar lines of work.

DR. JOHN J. GILBRIDE, Philadelphia: I did not trace out that case of poisoning from 15 grains of phenolphthalein to which Dr. Wood has referred, but I accepted the statement made in THE JOURNAL.

SUTURE OF BLOOD-VESSELS WITH HUMAN HAIR *

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PITTSBURG, PA.

One drawback to suture of blood-vessels is the difficulty of obtaining proper suture material, as silk of suitable fineness and smoothness and tensile strength is not readily procured. To meet this difficulty we decided to test a material universally distributed, namely, human hair.

Light brown hairs of medium fineness about 8 inches long were tested as to tensile strength and found to be stronger than the silk previously employed. One of the carotid arteries of a recently killed dog was divided and the ends reunited with the hair as suture material. Hair proving satisfactory in this preliminary operation, a number of hairs were then threaded, and tied into sterile needles (No. 14 cambrics) and placed in 10 per cent. aqueous formalin.

A medium-sized dog was anesthetized and the left common carotid artery and corresponding internal jugular vein were exposed and divided. The peripheral end of the artery and the central end of the vein were ligated and the remaining two free ends were united by means of the needles and hairs sterilized in the formalin solution. The encircling suture was continuous and all of the coats of the vessel were penetrated and included in each stitch. No difficulty was experienced in using the hairs as sutures, and the result was good, the wound healing *per primam intentionem.* The pulse remained good.

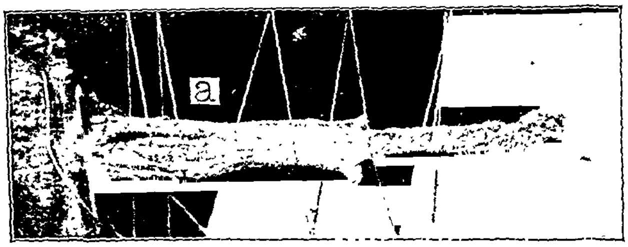

Fig. 1.—Central end of left common carotid artery anastomosed to the peripheral end of the left inferior jugular vein with human hair.

Five and one-half months later the animal was chloroformed. On exposure the walls of the vessels appeared to be continuous. The circulation was active. The specimen was removed, slit open longitudinally and photographed (Fig. 1). The line of suture (a) could hardly be seen as the intimal surface was perfectly smooth and glistening. The longitudinal creases in the venous portion of the segment indicate clearly the line of anastomosis.

A few remarks on technic may be of interest.

No. 12 cambric needles can usually be obtained at dry-goods stores, and on medium-sized vessels may be used with good results, though for end-to-end suture we prefer No. 14, while for small vessels No. 16 needles. In purchasing such needles the common small-eyed variety should always be insisted on.

Figure 2 shows manner of tying thread or hair in needle and mounting on small slip of paper for convenience in handling, sterilizing, etc. The perpendicular dotted lines indicate where the paper may be folded over the needle and thread for protecting them. For immediate use, we have found an ordinary microscope objective box quite satisfactory as a container for the needles during sterilization and on the operating table until ready for use. The box is filled about two-thirds full of paraffin oil and the papers holding the needles as shown are dropped in with or without folding. The box top, which is fitted inside with a tight-fitting disc of cork, is then screwed on and the whole placed in the sterilizer, and boiled and handled with the instruments.

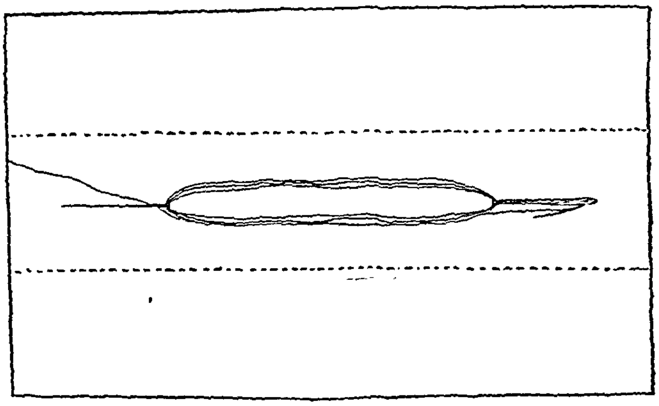

Fig. 2.—Thread or hair tied in needle and mounted on small slip of paper for convenience. Dotted lines show where paper may be folded over needle and thread to protect them.

Shortly before use the threads are unwrapped and, with the needles and papers, laid parallel on a smooth cloth, or, better still, a small square of black rubber sheeting or oilcloth. Contact with lint is carefully avoided, especially if silk or other spun thread is used.

Figure 3 shows the paper package containing needle and thread as prepared in Figure 2, sterilized and placed in glass tube containing sterile (or antiseptic) paraffin oil and the tube sealed. Thus prepared it may be kept indefinitely. When wanted for use the tube can be broken at the file mark and the contents removed in the ordinary way. Three or more such needles and thread may be placed in a tube, three being the number ordinarily required for making a complete circular vascular suture.

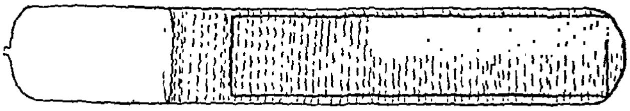

Fig. 3.—Paper package containing needle and thread, prepared as in Figure 2, in sealed glass tube containing sterile or antiseptic paraffin oil.

In conclusion, we desire to state that the use of human hair for the above purpose was suggested to the senior writer C. C. G. in 1905, by Dr. A. W. McAlester of the University of Missouri.

Artery Anesthesia.—Mention has previously been made in these columns of Goyane's method of regional anesthesia by injection of the anesthetic into an artery between two tourniquets after winding the limb from below to expel the blood. The principle is similar to Bier's *vein anesthesia.* Goyane reported in November, 1908, both experimental research and the application of the method in two and now has an experience of twenty cases. The *Siglo Medico,* Oct. 9 and 16, 1909, has republished his first communication on the subject to the Madrid Medical Academy. He says he has had no mishaps since and thinks the absence of valves in the artery renders the technic superior to the vein method (described in The Journal, May 1, 1909, page 1466).

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* From the Physiological Laboratories of Washington and Pittsburg Universities.

A METHOD OF AMELIORATING RENAL COLIC

REPORT OF AN ILLUSTRATIVE CASE *

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ST. LOUIS

Few who have practiced in genito-urinary surgery for any length of time have escaped the soul-harrowing descriptions of the tortures of renal colic, as given by sufferers from that condition. It will, therefore, be needless to present any apology for rehearsing an experience that occurred to me during the recent winter, if the plan of action adopted at that time serves others as well as it did me. In effect, it promptly and readily cleared up a situation that was rapidly becoming serious, if not dangerous; and postponed for a more eligible time an operation that, if done earlier, might have brought calamity to the patient, instead of the relief that it finally occasioned. A brief history of the case follows:

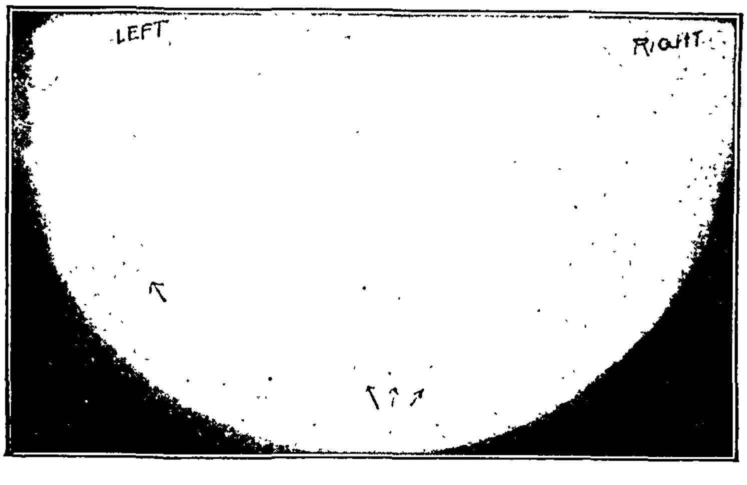

Fig. 1.—First radiograph taken, not accompanied by ureteral catheterization, showing four shadows, apparently three in the bladder and one in the left ureter.

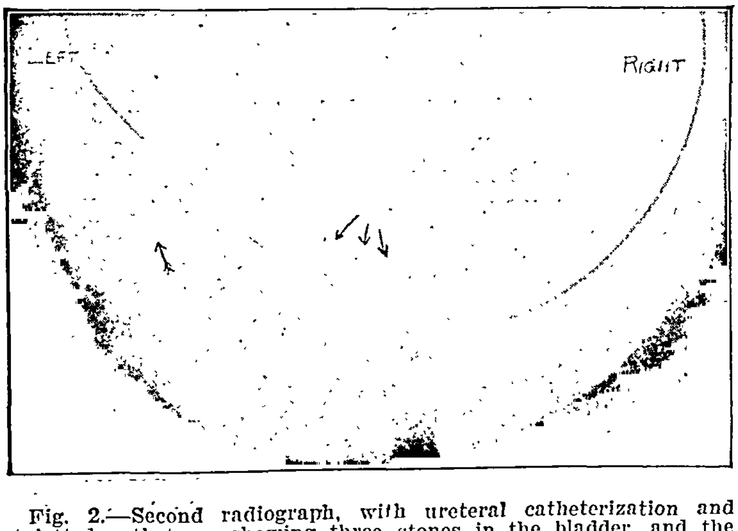

Fig. 2.—Second radiograph, with ureteral catheterization and styletted catheters; showing three stones in the bladder, and the fourth shadow three-fourths of an inch from the ureter, instead of within it.

History.—A. D., an unmarried woman, aged 25, nurse, previously strong and healthy, began in the fall of 1907 to suffer from severe pain in the right side of the abdomen, embracing the uretero-appendiceal regions. After a time, during which there was much suffering, elevation of temperature, chills, etc., the condition was diagnosed as appendicitis and the appendix was removed by a capable surgeon early in 1908. But the operation evoked no relief, and for the following nine months there was repetition of the previous suffering. Occasionally there was hematuria.

Radiographic and Cystoscopic Examination.—In September, 1908, a radiograph was taken by Dr. R. D. Carman, a print of which is herewith shown (Fig. 1). As will be observed, it shows three shadows in the median line, close together, and a fourth to the left, low down, in a region that might readily embrace the lower end of the left ureter. As a result of this finding, apparently indicating calculi in the lower urinary tract, three in the bladder and one in the left ureter, I was called into the case, in September, 1908. Not accepting the delineation of the *x*-ray as positive or final, I insisted on the use of the cystoscope, styletted ureteral catheters, plus the *x*-ray. The point proved well taken. Immediately on introducing the cystoscope, three stones about the size of a pea were plainly seen lying in the *bas fond* or retrotrigonal fossa of the bladder. Then, ureteral catheters containing copper wire stylets were passed up the ureters, and Dr. Carman took another *x*-ray picture. The result, shown in Figure 2, is impressively instructive. The four shadows are there, as in the previous negative, but the fourth one is removed at least three-quarters of an inch from the left ureter, as indicated by *the shadow of the wire, and is not in that organ at all.* Its outline and general appearance are very similar to the shadows of the three genuine stones contained in the bladder, so that, so far as the *x*-ray is concerned, no differentiation was made by it; but by proof of cystoscope, styletted catheter and *x*-ray, it was clearly shown to be no ureteral calculus, but probably was only a phlebolith or a calcified gland—nothing of import. In addition to showing the three stones that had descended from the upper tract, the cystoscope showed whence they had come. The left ureteral orifice was normal in appearance, while the right was large and patulous and had plainly been the avenue of egress for the stones; which finding was further confirmed by analysis of the two urines separately drained. That from the left was approximately healthy, while that from the right contained blood and pus corpuscles and non-gonorrheal diplococci.

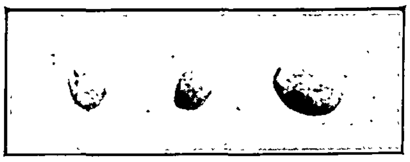

Fig. 3.—The three stones after removal through the operative cystoscope.

The diagnosis then made was of small stones in the bladder, with pyelo-ureteritis on the right side resulting from their having existed in the upper tract for a year or more previously.

Treatment and Course of Disease.—The three stones were first removed, by means of my operative cystoscope and alligator forceps, no preliminary cutting or dilating having to be done. They are illustrated, full size, in Figure 3. Afterward, prompt, marked and prolonged relief followed the regular irrigation of the right renal pelvis and ureter with argyrol solutions of varying strength. The patient visited her home in the country, gained in weight and general health, and experienced no more pain in the side; so it was deemed permissible for her again to pursue her occupation of nursing, which she resumed in December. This, however, proved unfortunate; the pyelitis was reawakened, hematuria reappeared, the temperature became elevated, urinary chills and infected urine indicating the infection that had recurred. Pelvic lavage would apparently do good for a time, but relapses continually recurred. Moreover, her old enemy, severe renal colic on the right side, returned and became worse than ever, requiring repeated hypodermatic injections of morphin for even temporary relief. She was soon taking from two to four grains in twenty-four hours. But, worse still, her urine dropped to ten or fifteen ounces in twenty-four hours, and the conditions became precarious. She was not deemed strong enough at that time to make lumbar nephrotomy attractive, and she had not previously given her consent to the measure. A half or three-quarters of a grain of morphin gave relief only for an hour or two; and sleep had been reduced to about one or two hours in twenty-four. Something radical and effective, evidently, had to be done, and shortly. I applied a measure that occurred to me in the midst of my perturbation, and which, so far as I am aware, has not been previously employed. The patient was placed on the cystoscopic table, a catheter was passed to the right renal pelvis, and 1 per cent. solution of alypin was injected directly into the pelvis, 20 minims in amount. Within ten minutes the patient expressed herself as being greatly relieved; by fifteen minutes no pain remained. The catheter was withdrawn and she had the first good sleep she had obtained for several days or nights. On the following day the renal colic returned, but in somewhat lessened severity; nevertheless, in order to prevent a recurrence of the siege of pain that had formerly prevailed, the ureteral catheter was reintroduced and 1 per cent. alypin solution was again injected, fifteen minims, promptly producing the same marked relief as on the previous day. This time, in order to avoid the necessity of repeated introduction of the ureteral catheter, it was allowed to remain in the ureter, held there by means of adhesive plaster, emerging from the urethra and draining into a sterile receptacle between the legs. When pain threatened to recur, one of the nurses present would inject ten minims of the alypin solution, which attained the desired result in every instance. After three days the crisis seemed to be over; the attacks ceased in their frequency and intensity; the catheter was withdrawn and all menacing conditions disappeared. In February, with a recurrence of the pelvic inflammation, the patient's consent to an operation was obtained; exploratory nephrotomy was carried out on the right side. The renal pelvis was found sharply inflamed and moderately dilated, but no foreign body or stone was found in it, and there was no obstruction to the passage of a catheter downward into the bladder (none had previously been discovered in passing the catheter upward along the same tract). The pelvis was drained by cigarette tube, the kidney being attached to the adjacent muscles. Recuperation was satisfactory, the urine cleared of infection and clouding, and the patient again was able to be about. At the writing of this report, April, 1909, there was no disturbance from the kidney or ureter of any kind. From forty to fifty ounces of clear, healthy urine were being secreted daily.

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* Read before the American Urological Association, Atlantic City, June 6, 1909.

Aside from the interesting features of diagnosis in this case, the one that I wished to present for attention was the expedient adopted for relieving the excruciating renal colic that recurred, persisted and actually threatened the life of the patient, through the debilitated condition to which she had been reduced. The plan was easily applied, without the least difficulty or objection on the part of the patient; and after she had experienced her first relief from it she was highly in favor of it. The release from pain seemed to have a beneficial effect on the renal secretion, the amount of urine soon afterward reaching thirty-five or forty ounces, instead of fifteen, the amount she was passing during the painful period. Used in the amount finally adopted, from ten to fifteen minims of 1 per cent. solution, the alypin caused no depression or bad effect, and yet gave the relief in each instance.

1050 Century Building.

The Thyroid in Cretins.—In the true cretin the gland histologically presents marked overgrowth of fibrous tissue, with a corresponding disappearance of the epithelial elements, while in the preclinical stage the gland presents a marked epithelial hyperplasia with relatively slight increase in the supporting fibrous tissue. Thus with the progressive epithelial hyperplasia finally giving way to the fibrous overgrowth as typifying the anatomic changes in the cretin, or myxedema thyroid, it may be said that the symptom-complex varies with the degree of epithelial hyperplasia and fibrotic atrophy.—D. Marine and C. H. Lenhart, in *Archives of Internal Medicine.*

PSEUDOPERITONEUM, VARICOSITY OF THE PERITONEUM AND SCLEROSIS OF THE MESENTERY

WITH A PRELIMINARY NOTE ON DEVELOPMENT OF FIBROUS TISSUE *

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It was formerly common to compare the peritoneal cavity with a lymph space. This comparison was unfortunate, as it led to a misconception of the nature of the peritoneum. Thanks to the researches of Dr. Sabin and others, our understanding of the lymphatic system is now much more complete. The comparison of the peritoneum to the lymphatic system was due to the fact that there is a close resemblance in structure between the endothelium of the lymphatics and that of the peritoneum. Functionally the comparison is not apt. The peritoneum is the protective covering of the abdominal viscera—nothing more. In order that this function may be fulfilled, the peritoneum must not only serve as an efficient covering, but provision must be made for the movements of the abdominal viscera. This is accomplished by the viscid fluid with which the peritoneum is constantly covered. The peritoneum, therefore, if it must be compared with any other structure of the body,

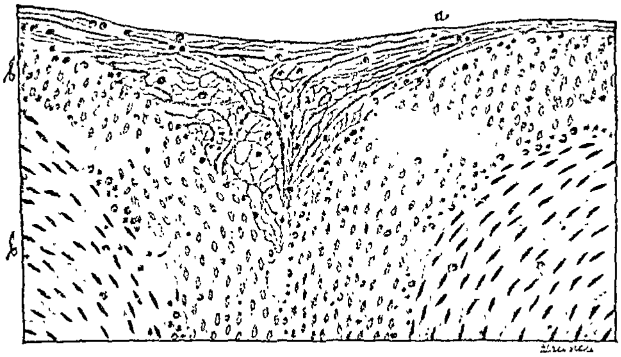

Fig. 1.—Intestine of dog; specimen removed after twenty-four hours; a, fibrin bundles extending from one intestinal layer to another; b, b, longitudinal muscle layer; c, c, circular layer.

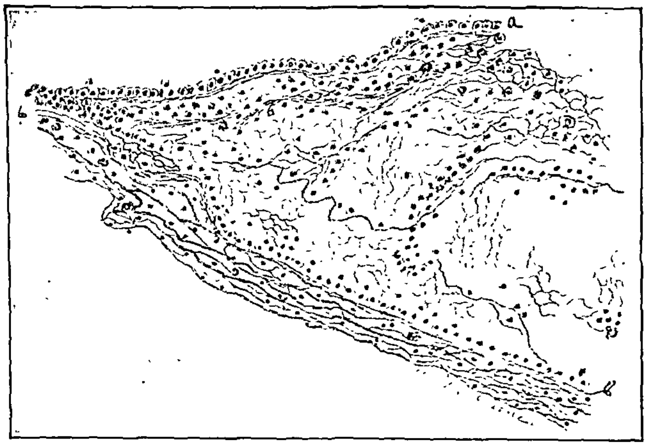

Fig. 2.—Fibrin bundles forming about a corn-pith sutured to intestine of a half-grown rabbit. Specimen removed after six hours. Mallory's aniline-blue stain; a, endothelial cells; b, b, fibrin bundles.

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

can with greater justice be compared with the synovial membrane of the joints.

The correct understanding of the pathologic changes of the peritoneum with which this paper deals is so intimately connected with certain fundamental processes relative to the formation of fibrous tissue in general, and wound healing in particular, that it seems desirable to preface my remarks on the peritoneum with a somewhat extended preliminary note on my researches in the formation of connective tissue fibrillæ.

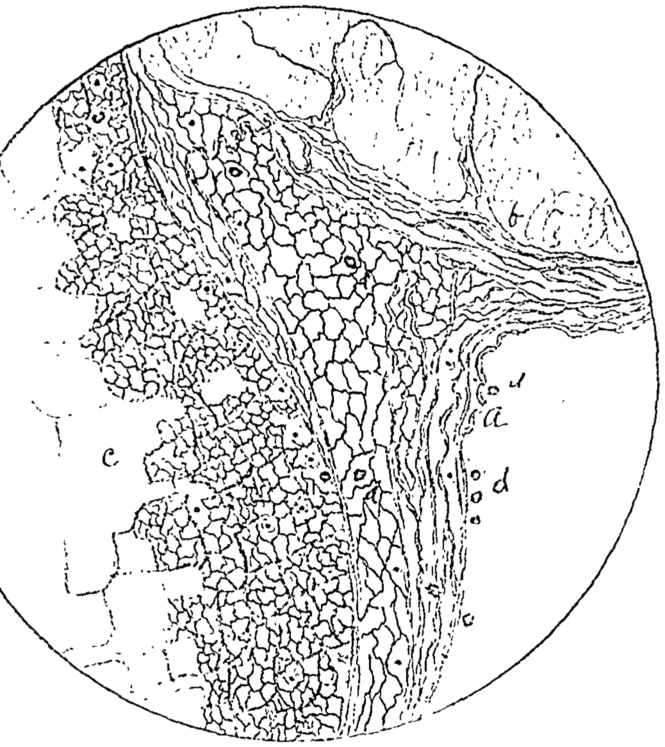

Fig. 3.—Half-grown rabbit; specimen removed after six days. Van Giesen stain. A, connective tissue fiber bundles extending within and from corn-pith (c) to intestine (b); d, endothelial cells.

The prevailing theories of the formation of fibrous tissue, it will be remembered, are (1) that connective tissue is formed within the cell (fibroblast) and afterward becomes extracellular; (2) that the fibers are primarily extracellular, being formed by the cells by a process analogous to cell secretion. My researches have convinced me that the cell is not primarily the active agent, but that the initial processes are chemical and are identical with those of blood coagulation, the cell playing an entirely secondary rôle.

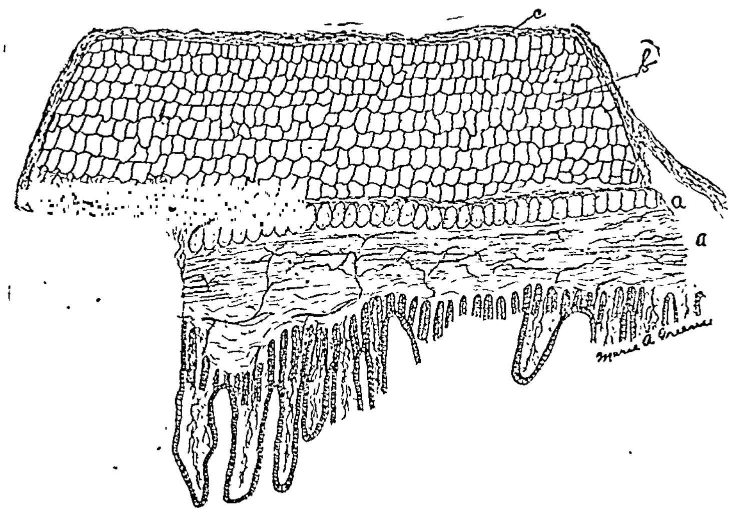

Fig. 4.—Schematic drawing of a four weeks' old specimen of half-grown rabbit. Endothelium not shown. Corn-pith stitched to the peritoneum and covered with amorphous exudate; a a, intestine; b, corn-pith; c c, fibrillæ covering the corn-pith.

My chief material for study has been the formation of fibrous tissue in wound-healing, particularly of wounds of the peritoneum. Embryonic material has been studied for comparison. Several anatomists who have followed my studies have urged the claims of embryonic material as the most suitable for these studies. But in such tissue the deposition of the fibrils and their change into fibrillæ are, to a very great extent, simultaneous processes which obscure the fundamental process at work. The formation of fibers in wound-healing, on the other hand, progresses with great rapidity and is less complicated than in embryonal tissue and is, therefore, more easily followed. Since the initial process of all wound-healing is instituted by the substance beneath the endothelial cells, the healing of peritoneal wounds should give us the best material for the study of wound-healing. Experience has proved this to be the case. The chief process in wound-healing is the formation of fibrous tissue. The formation of higher types of tissue occupies a less important place. Each separate step in the formation of fibrous tissue should stand out more clearly in wound-healing, therefore, than in the developing embryo. The relation of the formation of fibrous tissue in wound-healing and the formation of identical or similar tissue in the ordinary course of development need not concern us here.

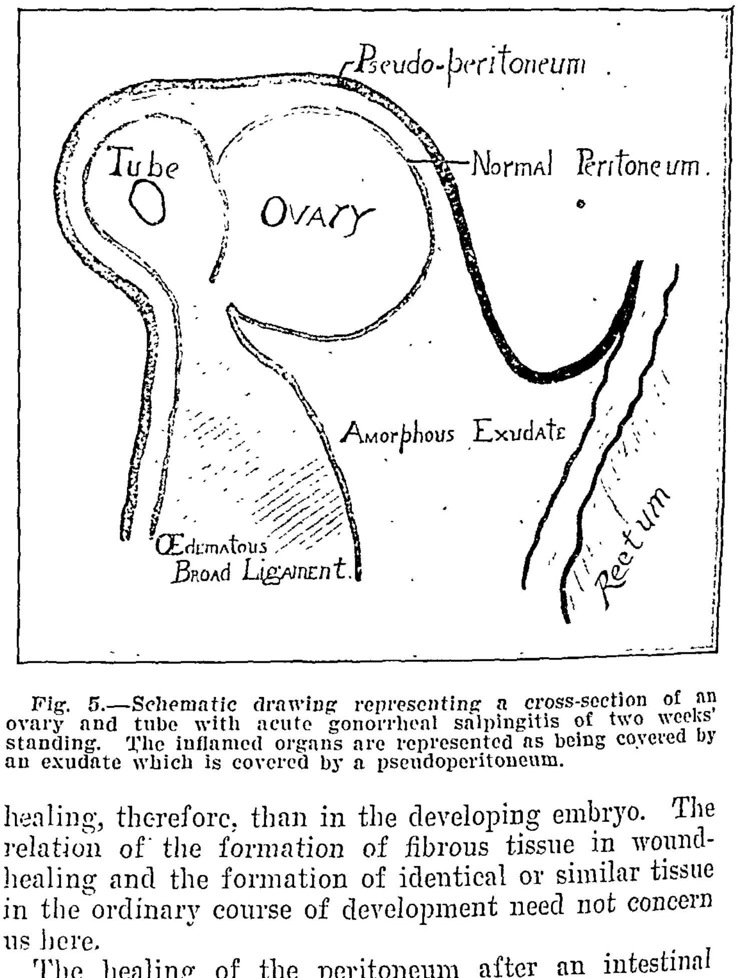

Fig. 5.—Schematic drawing representing a cross-section of an ovary and tube with acute gonorrheal salpingitis of two weeks' standing. The inflamed organs are represented as being covered by an exudate which is covered by a pseudoperitoneum.

The healing of the peritoneum after an intestinal anastomosis has been made is the peritoneal process which has been most studied in the past and may, therefore, be selected as the one most likely to be understood. When an anastomosis is made the angle resulting from the approximation of the two peritoneal surfaces quickly fills with an amorphous exudate. After a short time, beginning within a few minutes and becoming well developed in one or two hours, this amorphous exudate is converted into fibers. These fibers extend from peritoneal surface to peritoneal surface with mathematical exactness (Fig. 1). Similarly, when a foreign body (a bit of corn-pith or cork) is stitched to a peritoneal surface, it is quickly covered with a similar amorphous exudate (Fig. 4), which also soon forms into fibers. These fibers cover the foreign body without interruption.

The character of this amorphous exudate has not been determined. Its chief source is immediately subendothelial; it is very rich in chlorids and is, as stated in a previous paper,[1] the substance which caused so many failures in the surgery of blood-vessels.

With the formation of the exudate and its conversion into fibers the cells appear to play no part, for the process may take place before the advent of cells. Usually, however, sooner or later cells appear. The number of cells varies greatly, depending on the amount of reaction undergone by the surrounding tissue. The important point is that these bundles appear fully developed morphologically before the advent of cells. Early these bundles stain characteristically by both Mallory's and Weigert's stain and may be regarded without hesitation as fibrin bundles. The gradual change of the fibrin bundles into adult connective tissue fibrillæ can be followed best by means of Mallory's stain. Certain bundles, usually those nearest the surface, change first from the yellowish color characteristic of fibrin to the blue characteristic of fibrous tissue. The fibers which first appear are not replaced by the cells, but those fibers nearest the cells usually undergo the changes earlier. It would seem from this observation that the cells are active in producing the changes manifest by the changed tinctorial reaction. In some regions the changes appear to take place without immediate contact with cells.

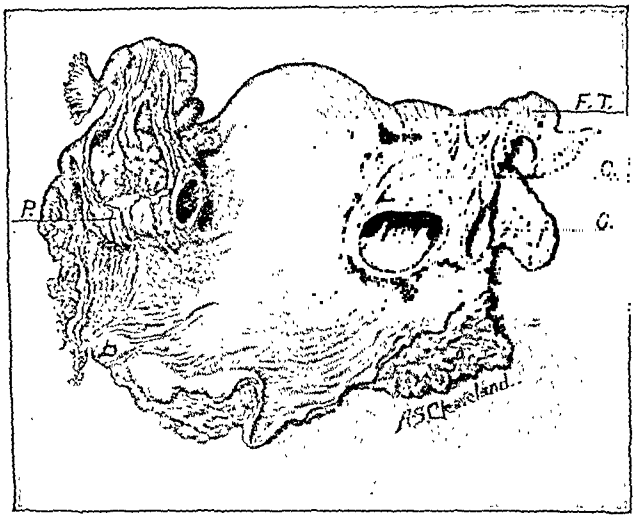

Fig. 6.—Empty capsule of [illegible] mass which it encapsulated having been [illegible] specimen; P., pseudoperitoneum; F, T., Fa[illegible]

The number of cells present vary in number and character. In Figure 2, a six-hour specimen, they are more numerous than in Figure 1, a twenty-four-hour specimen. Their character likewise varies. If the irritation is very slight they are nearly all mononuclear in character, but if there has been rough handling of the tissue the ordinary polynuclear cells may predominate. The former, it seems certain, are the important ones. It is they, at least, that assume a place on the surface (Fig. 2, a) and by a gradual metamorphosis become the endothelial cells of the new peritoneum, and are those intimately associated with the tinctorial changes in the fibrin fibers. As to the nature and origin of these cells it may suffice for the present purpose to say that my studies have confirmed, in a great measure, the studies of Maximow.

In a previous paper[2] I called attention to the fact that the factors which cause the blood to lose the power of coagulation likewise prevent wound-healing. Briefly restated, I found that by poisoning with phosphorus or by the injection of peptone according to the direction of physiologists for the destruction or inhibition of the coagulability of the blood, wound-healing is prevented. In intestinal anastomosis, for instance, made immediately before or after an animal receives 0.3 gm. per kilo weight of peptone intravenously or intraperitoneally no attempt at healing takes place. The same is true, it may be stated as a matter of practical interest, after the use of fresh pancreatic extract, or by the formation of a crushing wound of the pancreas during the course of the abdominal experimentation. I have recently repeated these experiments with a complete confirmation of my former results. These experiments, it seems to me, materially strengthen the evidence of the positive tinctorial reaction with Mallory's and Weigert's stains and leave no doubt as to the identity of the preliminary process of wound-healing and blood coagulation.

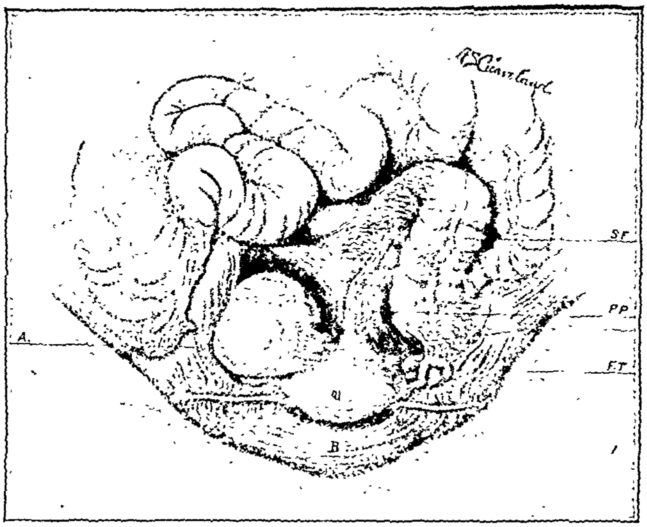

Fig. 7.—Specimen from patient operated on at Southside Hospital. Pseudoperitoneal membrane binding the sigmoid to the broad ligament and the rectum to the uterus. The tubo-ovarian abscess on the right is covered with a pseudoperitoneum A., abscess; S. F., *sigmoid flexure*; P. P., *bands of pseudoperitoneum*; F. T., *Fallopian tube*; U., uterus; B., bladder.

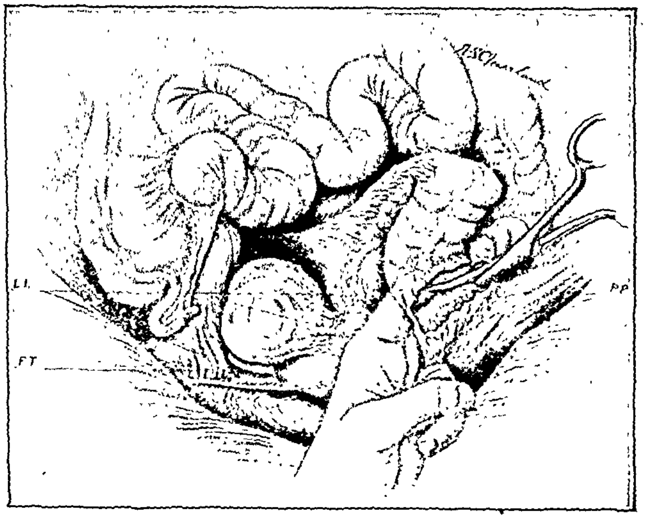

Fig. 8.—Method of identifying the separate layers of peritoneum and line of incision for the removal of the tubo-ovarian abscess. L. I., dotted line of incision for formation of peritoneal flaps; F. T., Fallopian tube; P. P., anterior and posterior layer of the pseudoperitoneum.

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1. Hertzler, A. E.: Tr. West. Surg. Assn., 1903, xiii, 265.
2. Hertzler, A. E.: Tr. West. Surg. Assn., 1904, xiv, 76.

I. THE PSEUDOPERITONEUM

As previously stated, when a foreign body is stitched to the peritoneum an exudate soon covers the body and coagulating weaves over it a network of fibrin bundles (Fig. 4). These by the changes above noted become adult connective tissue fibrillæ, the new cells covering the surface become endothelium, and new blood-vessels form from the border and ramify over the surface. In this manner there is formed over the foreign body a new membrane, identical with the peritoneum in structure and in function, but entirely distinct from it. This membrane I have called the pseudoperitoneum.

A great variety of pathologic processes simulate the action of the foreign body in the experiment. The purulent exudate about a gonorrheal tube, as represented schematically in Figure 5, is a familiar example. The purpose of the exudate is protective, but when this protective character is negated by toxins it becomes a foreign body. This foreign body institutes the same series of processes that took place in the experiment with the corn-pith and ultimately a fibrin layer is formed over the entire mass of exudate. If surrounding intestines and omentum are involved in the process, this involvement is accidental and does not affect the underlying principles. The fibrin layer undergoes the same series of changes as indicated in the experiment, forming a membrane, that is to say, a pseudoperitoneum, which surrounds the mass; in other words, encapsulation has taken place. The foreign body once so encapsulated may become absorbed, leaving the capsule (i. e., adhesions) as a useless or deleterious structure (Figs. 6 and 10), but when the foreign body remains permanently, as in a tubo-ovarian abscess (Fig. 7), the new membrane continues in its protective capacity. Processes similar to those about the ovary occur wherever inflammatory processes appear (Fig. 10).

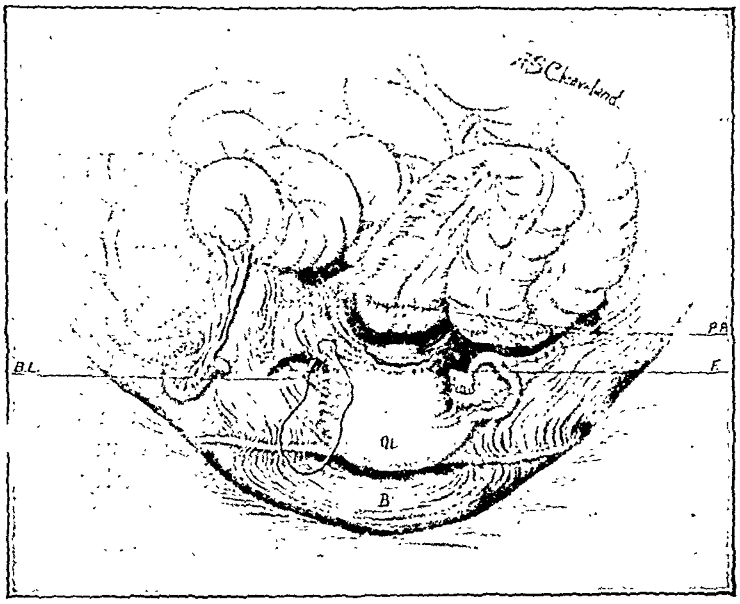

Fig. 9.—Closure of wound after severing of the pseudoperitoneal planes and the removal of the diseased tube and ovary. B. L., broad ligament in process of closure; P. P., two layers of pseudoperitoneum inverted by Lembert suture; F., flaps not yet united, but ready for closure; U., uterus; B., bladder.

Parenthetically, it may be noted that when the irritation is just sufficient to cause an exudation of the fibrin-forming material, but where no toxins are produced to destroy the fibrin-forming elements, permanent union of the neighboring structures will appear. On the other hand, when the exuded material is acted on by toxins, precipitation of the fibrin forming elements takes place instead of the formation of fibrin. In this way a mechanical agglutination of the opposing surfaces may result, forming a temporary walling-off but not of fibrous union—at least, not according to the process detailed, that is, with a pseudoperitoneum. The precipitated mass is afterward absorbed and the agglutinated organs become free. This corresponds to the division of fibrin into the fibrinous and the granular as made by the physiologists. The fibrinous alone is capable of formation into fibrous tissue. The granular is always absorbed. But if the power of forming even a precipitate is lost there is no walling-off of the infective process and a diffuse inflammation is the result. In harmony with these observations is the action of bacterial exudates. Certain bacteria (gonococcus, pneumococcus) favor fibrin formation, while others (streptococcus, colon bacillus) prevent it. This explains why infection in the presence of digestive ferments (wounds of the upper portion of the intestinal tract and pancreas) are so little likely to form adhesions.

The clinical behavior of the pseudoperitoneum depends on whether or not the protective function is permanently required; that is, whether or not the foreign body it was formed to cover remains. If no longer of use because of the absorption of the foreign body—that is, the exudate—it exerts a deleterious effect just in proportion as it limits the function of the structures to which it is attached (Figs. 6 and 7). If by such limitation of motion it causes a disturbance it should be removed (Fig. 8). In this removal its peritoneal character should be remembered. The various layers should be identified in order that all raw surfaces may be avoided by inverting the severed edges, as indicated in Figures 8 and 9. When, however, the pseudoperitoneum is still exercising its protective function, that is, when the exudate has not been absorbed, and it becomes necessary to remove the object which has made protection necessary (Fig. 7), the membrane must be dealt with in order that the defect resulting from such removal of the foreign body can be covered by the pseudoperitoneum (Fig. 9). If it is kept in mind that such coverings are really peritoneal in structure and function, the expression "tearing up adhesions" will not be heard so often. If properly planned, the removal of these membranes or the removal of the foreign body beneath them can nearly always be accomplished without leaving a surface denuded of peritoneum (Figs. 7, 8 and 9). Each surgeon will employ the technic which corresponds most nearly to his usual custom. I have recently employed the very fine material used by Carrel for vessel work instead of the 00 gut formerly employed.

II. VARICOSITY OF THE PERITONEUM

Closely resembling the preceding in appearance, though very different in its pathogenesis, is a condition of the peritoneum in which the chief changes are in the blood-vessels. The peritoneum appears as a veil of blood-vessels which obliterate more or less the anatomic structure beneath, as, for instance, the tenia of the colon is obscured in Figure 11. The connective tissue is affected in varying degree, but always the vascular changes are of chief importance, a fact which does not appear in the figure because the drawing was made from a postmortem specimen. If there is no increase in the connective tissue the peritoneum simulates a mesentery to the distended veins. This appearance is familiar to every one, as it occurs in a slightly modified form in the omentum when it is attached to an ovarian cyst with twisted pedicle or to a crippled fibroid. The vessels which are dilated are the peritoneal or omental vessels as distinguished from those of the mesentery (Fig. 11) and are the result of the distention of what were normally very minute vessels. As seen in the figure, the general direction is from the periphery of the abdomen toward the mesenteric root. Usually the peritoneum is freely movable on the underlying structures because of the changes which have occurred in the subperitoneal connective tissue.

The causative factors may be divided into three classes:

1. When seen in the process of formation these varicosities are observed in the region of active inflammatory processes. There is, in addition to the dilatation of the vessels, a subperitoneal exudation, lifting up the membrane from the underlying organs, forming, in fact, a subperitoneal edema comparable to similar conditions under the skin. We might speak of it, therefore, as an acute subperitoneal cellulitis (as seen about the cecum in appendicitis).

2. As the result of obstructive processes about the root of the mesentery, there may be a simple obstruction, as when a benign body is obstructing the mesenteric root, or the process may be a reactive one as seen when inflammatory (cholecystitis, gastric ulcer) or cancerous processes are located in that region. In this type the mesenteric vessels are as likely to be affected as the peritoneal. We might speak of this type as "milk-leg" of the peritoneum.

3. In some instances—and those are the majority—the causative factor is no longer plainly apparent. There is, however, nearly always, an appendix which presents some of those minute changes, capable, perhaps, of detection by the microscope only, which are generally regarded as expressions of a previous acute process. In the upper abdomen there is usually a gastric scar or quiescent gall-stones with tell-tale adhesions. This is the type from which the term "varicosity of the peritoneum" was suggested and is quite analogous pathologically to varicocele elsewhere. This type includes the two preceding, the difference being that the causative factor is no longer active, and the lesion is no longer an active process, but a final result.

The pathology is expressed in a hyaloid degeneration of the subperitoneal connective tissue. The vessels may have thin walls, or the walls may be thickened, if a reactive factor was prominent in the course of the development of the process. Whichever obtains, there is a hyaloid change in the connective tissue of the vessel-walls as determined by connective-tissue stains. There is frequently a colloid-like exudate in the meshes of the subperitoneal connective tissue which causes the peritoneum to be lifted from the underlying organs (Fig. 11). Sometimes there is in this tissue a production of fat characterized by the small size of the globules and the indifferent staining by Sudan III.

The clinical symptoms are in harmony with the pathologic anatomy. There is evidence of local passive congestion which may find expression in disturbance of function of the underlying organs, for instance, autointoxication, as indicated by indican in the urine, or by constipation or diarrhea or the two alternating. The most pronounced symptoms are due, however, to splanchnic irritation, usually manifesting itself at the peripheral nerve plexus or at the ganglia from which the nerves spring (*dyspepsie appendiculare*, Longuet) or, which is the most important of all, in a pronounced splanchnic neurosis (appendiceal neurasthenia, Schauman).

The treatment is dependent on the etiology. If, as is the case in the vast majority of instances, the condition is due to an affection of the appendix, its removal, as advocated by Howard Hill[3] several years ago, and since then by Longuet and Carles, relieves the symptoms. If there is disturbance about the mesenteric root, usually due to cholecystitis, the removal of the cause of disturbance whenever possible is indicated. In some instances the removal of the causative factor is insufficient, for the changes in the vessel-walls may be permanent. In these instances the general principles applied to varicosities in general, the obliteration of the vessels, may be applied. I have sought to accomplish this by means similar to those employed in varicocele of the scrotum and broad ligament. By excision of a segment of the vessel-bearing membrane and covering the defect with peritoneum a permanent obliteration of the vessels is accomplished without leaving a denuded area. In the few cases in which this method has been employed the intestinal as well as the nervous symptoms have been relieved. Probably the simple removal of the appendix would have accomplished the same result (Carles). J. N. Jackson has recently[4] proposed the removal of the entire peritoneum involved. Because of the changes in the subperitoneal tissue above noted, the technic is easy and alluring, but, since such removal leaves the colon devoid of a protective covering, few operators will care to imitate the procedure.

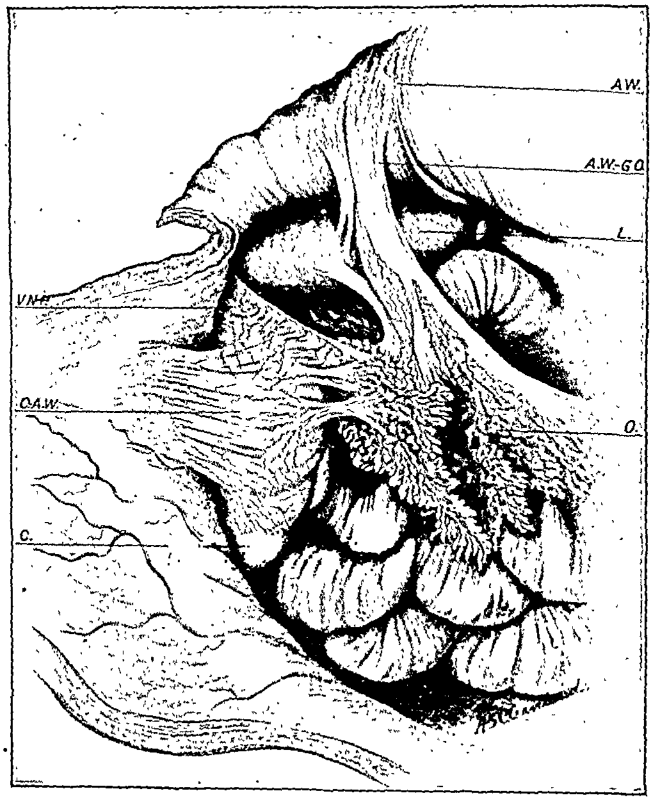

Fig. 10.—Pseudoperitoneums extending from colon to abdominal wall, colon to mesentery, mesentery to liver and from liver to abdominal wall. Over the cecum and at the hepatic flexure of the colon vascular dilatation (varicosities) are shown. V. N. P., vascularized normal peritoneum. C. A. W., pseudoperitoneal bands from cecum to abdominal wall; C., cecum; A. W., abdominal wall; A.W.-G.O., pseudoperitoneal bands from abdominal wall to great omentum; L., liver; O., omentum.

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[3] There has just come to my hand a reprint of an article by Dr. J. F. Binnie, reprinted from the Monthly Cyclopedia of Practical Medicine, 1905, viii, 341, in which he describes under the title "Pericolitis Dextra" the condition here under consideration. It seems from this paper that this author is the first to describe clearly and definitely this condition.

[4] Jackson, J. N.: Tr. West. Surg. Assn., 1908, xviii, 287.

III. MESENTERIC SCLEROSIS

The condition was first described by Virchow[5] under the term *Mesenterialschrumpfung.* He regarded it as a chronic peritonitis of the mesentery. In this condition there is an increase of the connective tissue of the mesentery resulting in a contraction with a subsequent distortion of the intestine. The sigmoid is the portion of the intestine usually involved, but any part of the large or even the small intestine may be involved. The mesentery, *normally thin and elastic,* becomes thick and opaque, even tendon-like (Brehm). The vascularity disappears and all elasticity is lost.

The chief interest here centers about the question of the pathogenesis. Most writers agree that the beginning is along the line of attachment of the mesentery to the intestine. The point of beginning, according to Graser, is at the point where the vessels enter the intestine. Here small diverticula are present, which, from irritation of fecal masses, cause ulceration and infection of the mesentery (Hansemann). The only dissenting voice of note is that of Riedel. He believes that the process begins at the mesenteric root. In one patient observed by me the chief point of involvement was over the ureter in a case of chronic periureteritis from stone. Usually the processes about the mesenteric root, as I have seen them, gave rise to passive congestion and I have fallen under the second group of my classification.

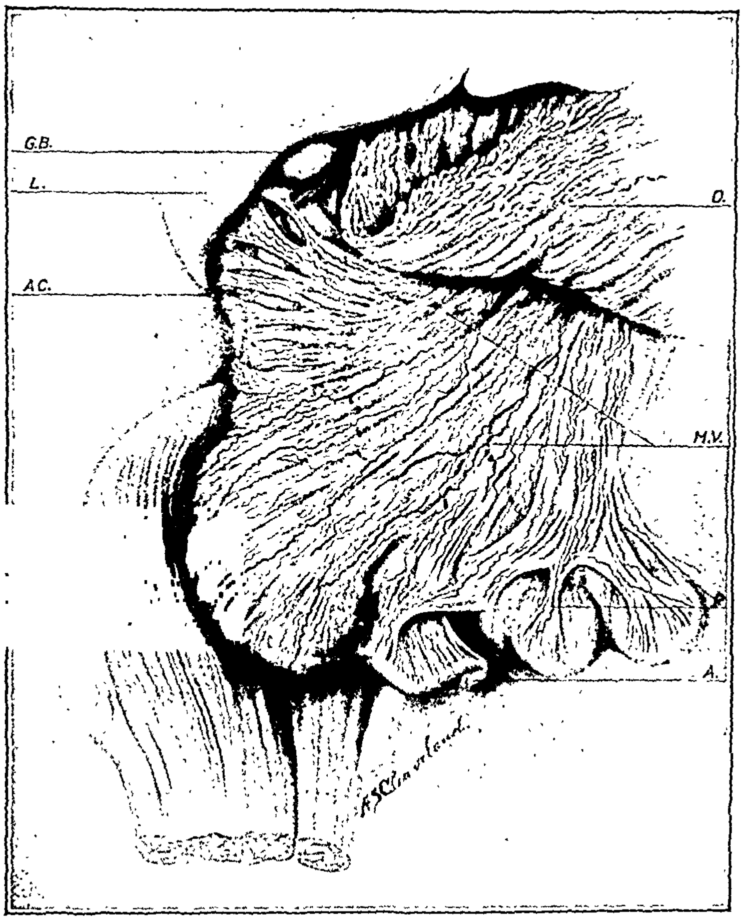

Fig. 11.—Varicosities of the peritoneum covering the lower right quadrant. At the hepatic flexure of the colon and over the ileum the peritoneum is raised up in bands which simulate pseudoperitoneal bands. The appendix was sclerotic and adherent to the pelvic floor. G. B., gall-bladder; L., liver; A. C., ascending colon; C., cecum; O., *omentum turned up to show mesentery;* M. V., mesenteric veins; P., thickened bands of true peritoneum; A., sclerosed appendix.

The important point, on which all are agreed, is that the process is an increase with subsequent contraction of the connective tissue of the mesentery. It is important to bear in mind that the *mesentery* is made up not of peritoneum but of connective tissue, being covered merely by peritoneum. The peritoneum is not necessarily involved in the process, and in the early stages is not. When the process is extensive, it is true, the peritoneum is involved. But in the beginning, let it be repeated, the condition is a subperitoneal process.

The importance of a proper comprehension of the various pathologic processes *to* which the peritoneum and the underlying *structures are liable is* made acute, now that operations, *most radical in their nature,* have been proposed and carried out. The rough classification here *tentatively proposed is an attempt to harmonize* the results of the research laboratory, the dissecting-room and the clinic-room. The pseudoperitoneum, being an adventitious product, may remain as a mischievous structure requiring removal. On the other hand, it may still be *performing the function for* which it was *originally* produced. In each instance which of these conditions obtain must be determined before it is attacked. In any event, these pseudoperitoneums are not to be "torn up," but to be dealt with as peritoneum with the object of preventing the reformation of mischief-makers equal to those originally existing. The varicosities are the expression of a lesion elsewhere. The removal of such lesion may result in a cure. *If not, an obliteration of* the lumen *of the vessels must be brought about.* This must not be attempted by the removal of the entire membrane involved, because it is not a pseudoperitoneum and its removal leaves the underlying organ without protection. In the third type (the mesenteric sclerosis), if obstruction of the lumen is caused, a resection of the intestine may be necessary. If the offending tissue is band-like, subperitoneal section of such band will be possible if the peritoneum is not involved. *In the first two groups (the pseudoperitoneums and varicosities) intestinal resection is not justified.*

The clinical differentiation of the three types of disease indicated in this paper is not always easy. Subperitoneal exudation may raise up the peritoneum, causing a simple varicosity to simulate a pseudoperitoneum in a very confusing manner, but the topographic relation is distinctive. Mesenteric sclerosis may be complicated by vascular congestion simulating varicosity, or varicosity *may be attended by a productive process which extends to the mesentery* proper, and vascular dilatation and *pseudoperitoneal formations are often* combined with primary mesenteric sclerosis in a very confusing manner. The surgeon's knowledge of topographic anatomy and his ability to judge of the acuteness of a vascular dilatation and its relation to an active or slumbering lesion must be his guide in dealing with such problems.

Argyle Building.

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[5] Virchow: Virchow's Arch. f. path. Anat., 1861, v. 335.

Progress in Clinical Pathology.—The time is past when *the* physician is satisfied merely to examine the urine of his patients for albumin and sugar, for it is being appreciated that the more thorough analysis of this excretion will often give important information *in other directions.* In order to detect *orthostatic albuminuria,* or mild cases of diabetes mellitus, it is necessary to examine both evening and morning specimens. A case of neuralgia, on diabetic basis, proved amenable enough to treatment when after several months the etiology was recognized by an *examination of the evening* instead of the *morning sample.* The detection of indican, skatol, acetone, bile, and urobilin will often materially aid in establishing a diagnosis. The quantitative estimation of chlorids is a very simple procedure, and *should* be *done more* frequently, especially in view of the relation of salt to the pathologic retention of fluid.—O. Hensel, in *Merck's Archives.*

THE EARLY SYMPTOMS OF UPPER ABDOMINAL DISEASE *

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We should be loath to admit that there is any class of diseases in which a diagnosis is rarely made until the nature of the malady is manifested by the occurrence of a complication; yet it is hardly an exaggeration to say that, until very lately at least, this has been the case in the diseases of the upper abdomen. Particularly is this true of the pathologic conditions within the surgical field, the very ones which are most grave, and in which delay in resort to proper treatment is attended by the most serious consequences.

The reasons for this state of affairs are easily found. The surgery of the upper abdominal organs has lagged far behind that of the pelvic organs or the appendix, partly because of the very diagnostic difficulties, which are, in turn, caused largely by the absence of precise surgical data, and partly because of the inherent difficulties in the technic of the operations required. The pathology of the viscera concerned has been based on postmortem studies in which are found, not mild or incipient processes, but the results of long-continued destruction and change of tissues; often, indeed, the disease which is itself under investigation has been allowed to go untreated to a fatal termination. Moreover, the physiology of the stomach, duodenum, biliary system and pancreas, with which we are concerned in this region, as well as that of other portions of the digestive tract, has been made clear only in comparatively recent times. We are just beginning to realize that in the digestive tract we have not a number of separate and incoordinate units, but that they are all in most intimate connection and that disease in one portion may manifest itself primarily by symptoms referred to an entirely different part. There are also some symptoms common to disease in almost any portion of the digestive tract—symptoms which, because of their very universality, have in times past generally been considered as neuroses due in some occult way to anything or to nothing in particular.

The intimate anatomic relationships of the organs of the upper abdomen, the stomach, duodenum, pancreas and biliary apparatus, are well known; and there is also an equally intimate physiologic coordination. In view of these facts, it is easy to understand why the symptomatology of their diseases should in many ways be similar and confusing, and why so many diseases of this region should fail of recognition in their early stages. Yet I can safely assert that this diagnostic uncertainty is gradually giving place to a comparatively clear differentiation of the various diseases of this region, and that we are now able by careful study of the history and physical signs to recognize many of the pathologic processes in their incipiency.

Before considering these more in detail, I want to emphasize the importance of a careful history in all of these cases. It has far more weight than anything we can elicit in the way of physical signs, and always merits our closest attention. Apparently minor points often are of the greatest value in diagnosis, though we may fail to recognize their importance until they are placed in proper relation to the other data at hand. In too many instances the medical attendant approaches the case with a preconceived idea of the diagnosis, based on a hasty summing up of the most striking symptoms. The patient's own description of his case is then distorted unconsciously perhaps to conform to a diagnosis already considered as definite. Moreover, there is often a disposition on the part of the physician to pay attention to the supposed cardinal signs and as a result the patient forgets or neglects to mention the very facts, apparently trivial, which are of most moment. Careful, definite questioning is of prime importance in eliciting a history of illness, but it should not be so directed that the patient is led to give his answers in accordance to the ones which are apparently wanted. A leading question is often a good one, but it can be made a misleading one by too much insistence on it.

I have found it to be of just as much value to follow a routine method of history-taking as to follow a regular method of physical examination.

In a consideration in detail of a few of the conditions with which we have to deal, gallstones furnish us with one of the classical examples of delayed diagnosis. Their occurrence has been noted for centuries, and the description of their symptomatology has remained unchanged for the last seventy-five years, until within the last few years. As given in most standard text-books of medicine or surgery of even recent date we find that they are those, not of the presence of gallstones, but either of impaction of the stones or of the accompanying acute inflammation of the gall bladder or ducts. When the pathologic revival took place some fifty years ago, enthusiastic investigators found biliary calculi in numberless instances in which the so-called "classical signs" were absent during life. The statement was at once made that gallstones produce no symptoms in 90 per cent. of cases. So eminent and careful an investigator as Naunyn, whose pathologic investigations on this subject are still of standard value, believed that most people with gallstones never had symptoms, and his belief has been accepted and reiterated without question ever since he set forth his ideas, some twenty years ago. Yet it is certain that practically every person who has gallstones suffers from them more or less continuously, if not always acutely. In the course of some statistical investigations on this subject which I made about two years ago, on a series of over 200 of my own cases, it was found that jaundice had been present in but 75 per cent., an even higher percentage than that found in the experience of Kehr, Mayo Robson, Moynihan or Mayo. My most recent statistics show about the same percentage. Indeed, Moynihan, in his recent volume on gallstones, has said that he considered jaundice as a symptom of little value, and Mr. Waterhouse[1] has stated that it is absent in 85 per cent. of his cases. Yet our text-book description would lead us to believe that a diagnosis of gallstones without a history of jaundice is impossible. Similarly, the sharp and excruciating pain in the right epigastrium referred to the back or right shoulder is a standard symptom of gallstones; yet in how many instances do we find but a mild or subacute pain or only a dull ache in the right upper abdomen.

But even before these symptoms come on, are there no signs by which the gallstones make their presence known? Most assuredly. In practically every case in which I have operated for gallstones the patient has given a history of long-standing "dyspepsia," a capricious appetite, constipation, marked flatulence, largely

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* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

[1] Waterhouse: Lancet, London, 1909.

independent of the taking of food, together with discomfort on an empty stomach and comparative comfort at night only after eating a little.

It will at once be noted that all these symptoms would be referred by the patient to the stomach, or perhaps to some hepatic disorder. The periods of discomfort are usually described as "bilious attacks" or "only slight attacks of indigestion." The only symptom during a long period of time may be a sense of tightness or constriction in the epigastric region. This is a rather characteristic feature of gallstone cases, as distinguished from other lesions of the upper abdomen. There is flatulence, with its attendant discomfort, which is often relieved by the eructation of gas, but the sense of tightness is more or less peculiar to gallstone disease. Relief from it is often obtained by pressure in the epigastrium or in other cases by the loosening of the clothes about the waist.

On cursory examination such a case would be classed as one of "dyspepsia." But it is to be noted that the "dyspeptic" symptoms become more and more annoying. As the case progresses the feeling of constriction becomes at times one of more or less actual pain, and after such an exacerbation there may be noted a soreness in the right side. It may never progress further than this. On the other hand, it may go on, if we allow it to do so by failure to institute proper treatment, until we have acute attacks of pain in the right upper abdomen and finally an unmistakable biliary colic.

We should not be deceived because these symptoms occur in a patient below middle age. Recent careful studies of over 400 of my cases have convinced me that gallstone disease begins in most cases before the fortieth year and often much earlier.

At times there occurs in association with this pain or discomfort a sensation of chilliness or cold, and this is quite characteristic of gallstones. Nausea or vomiting may occur with, or after the onset of pain, and the vomiting may relieve it. But since we have some nausea with almost every severe upper abdominal lesion its value is correspondingly lessened.

Krause, in 1884, described these so-called prodromal symptoms of gallstones and attributed them to the active formation of the calculi. His work was lost sight of. We know, however, that the symptoms are due not to the formation of gallstones, but to the presence of those already formed in a comparatively quiescent state.

In my own experience the *x*-ray has not been a very valuable adjunct in the diagnosis of biliary calculi. Some surgeons, however, among whom may be mentioned Beck and Waterhouse, have had good results in this direction. Doubtless refinements in technic will give the *x*-ray an ever-increasing value in the diagnosis of abdominal lesions. I have not infrequently seen hyperchlorhydria.

It seems to me that there is ample basis for the use of the term "gallstone dyspepsia," as has been suggested by Mr. Moynihan. We should diagnose "gallstone dyspepsia" much oftener than we do, and be ready to advise prompt surgical relief in order to save the patients years of annoyance and discomfort As one of the authors mentioned has put it, his "firm belief is that the majority of flatulent dyspeptic women who attend the out-patient room with such wondrous regularity to receive their weekly bottle of medicines are really suffering from gallstones." I believe that there is much truth in this statement, and also that we will find in a practice among the wealthier classes a still greater proportion of those in whom so-called "latent" gallstones are trying in a hundred ways to make their presence known.

The gallstone patient is not the only one on whom the diagnosis of a gastric or intestinal dyspepsia or neurosis is too often wrongly made. Subacute and chronic gastric and duodenal ulcers are just as often allowed to go unrecognized for years. Why, in either of these cases, should we wait for frank hemorrhage or marked tenderness on pressure, or even perforation, to make our diagnosis? No case of gastric ulcer need remain unrecognized until a copious hemorrhage makes it all too plain. In a person below middle age, persistent and grave dyspepsia should always lead us to think not of a functional disease, but of one dependent on well-marked pathologic changes. The condition is frequently due to a latent or chronic gastric ulceration, single or multiple. Such patients almost invariably complain of more or less pain in the pit of the stomach, often aggravated immediately after the ingestion of food, but at times relieved by it. Vomiting is rare unless the process involves the pyloric portion of the stomach and causes a partial stenosis. At times a trace of blood may be found in the stools, by the test for occult blood, when it can be demonstrated in no other way. The stomach contents in a case of gastric ulcer are often hyperacid, but I do not place much confidence in the gastric analysis. There are so many factors which in any individual may cause a wide variation of all the constituents, and our methods of examination are as yet so faulty, that the information which we derive from a gastric analysis is misleading just as often as it is of value to us. The question of the motility of the stomach is more important than is the secretory function.

Anorexia is common in occult gastric ulcer, or its place may be taken by a marked capriciousness of appetite. In all of these patients, however, we note a continued emaciation, an apparent inability to absorb food even when it is ingested. The pain and anorexia are both entirely unrelieved by the ordinary remedial measures. The patients, because of their continual suffering or discomfort, become unable to work or even to enjoy their leisure. The long-continued use of stomachics and tonics depletes rather than restores their vitality and health. Yet in most instances the diagnosis is not made or even suspected. The history is carelessly taken, the case classified as dyspepsia, and treated for an indefinite length of time, until perforation or violent hematemesis shows the true state of affairs. Even vomiting after meals, long continued and often repeated, is generally ascribed to some nervous condition, is called nervous vomiting, and is treated accordingly—that is, not at all.

Duodenal ulcer gives us symptoms in many ways similar to those of gastric ulcer, yet liable also to be confused with those of gallstones. There are certain distinctive features which should in the majority of instances enable us to make a positive diagnosis of the condition comparatively easy. In a general way ulcer of the duodenum presents symptoms analogous to those of similar lesions within the stomach. We have, in typical examples, pain after the ingestion of food, dyspepsia, and occasionally traces of occult blood can be demonstrated in the feces. The pain as a rule shows itself in two different forms; the first is that which comes on after eating, but at a somewhat longer and more variable interval after the food reaches the stomach. This is the pain which we find described in the so-called "classical" text-book description of the condition. The second variety is the so-called "hunger pain," described so well by Mr. Mayo Robson. We find that the patient suffering from duodenal ulcer is more comfortable when the stomach has some food in it, and that they rest better at night if something is taken immediately before retiring. This pain may not be described as such, and the patient may not be aware of the real cause of the desire to keep something in the stomach. In duodenal ulcer it has been noted that the pain, of whatever variety it may be, is rarely referred. Vomiting, and especially the vomiting of blood, is rare, painless at a late stage of the disease. Rigidity and tenderness I have already mentioned as early symptoms of duodenal ulcer.

I have lately operated in a case of duodenal ulcer, referred to me by Dr. J. B. Mencke. The patient had been treated by various physicians for five years. Not one had elicited a careful history until just before he was referred to me. His complaint was that about one-half or three-quarters of an hour after meals he had severe pain in the right epigastrium associated with flatulence and distention. He had never vomited except when he forced himself to do so, and then experienced relief. For days or weeks he would feel perfectly well and then after some indiscretion in diet he would have another attack. He had never been jaundiced or had blood in his stools.

In this man the general food nourishment, absence of vomiting and melena, and the periods of comparative well-being, had directed the attention of his medical attendants away from the true seat of disease. Yet a detailed history and his reiteration of the statements about the agonizing and unbearable pain should at once have convinced them that no simple catarrhal gastritis or an enteritis of a chronic variety could be the underlying cause. The physical examination and stomach analysis in this case showed us nothing, and only on the history of the case was the diagnosis made, and confirmed at operation.

Duodenal ulcer is, of all the conditions so far mentioned, the most occult in its signs. We must, however, revise our previous opinions as to its frequency. Recent clinical investigations at the operating table by Mayo and others have shown that it is found almost, if not quite, as often as gastric ulcer. In my own experience it has not been quite as frequent as with some other surgeons. It is easy to see how a duodenal ulcer of the chronic variety in the presence of a not very irritating gastric juice may give very vague symptoms for a long period of time. The absence of vomiting and hematemesis or of tangible facts in the physical examination makes the diagnosis most difficult. I lay especial emphasis in my wards on the careful examination of the feces for occult blood, and have many times found a clue in this way in cases in which the diagnosis was very doubtful.

The differential diagnosis between gastric and duodenal ulcer and gallstones is often impossible. Yet there are some instances in which the symptoms will give us at least certain points which will enable us to become fairly positive in our determination of the condition under consideration.

The initial symptoms of all of the surgical diseases of the organs of the upper abdomen are in many ways very much alike. Thus, for instance, we have dyspepsia in early disease of the stomach, duodenum and gall bladder. It varies somewhat, however, in type when accompanying the different lesions.

Early in gallstone disease, discomfort in the upper abdomen is noticed. It is hardly a real pain and is accompanied by eructation of gas, which often brings relief. The patient has a good appetite, but is afraid to eat. A patient with a gastric ulcer, on the other hand, always shows more or less anorexia, even if it be only at certain longer or shorter periods of time. Patients with duodenal ulcer vary greatly in this respect, some simulating gastric ulcer, others behaving more like gallstone cases.

Vomiting is far more frequently seen in patients with gastric and duodenal disease than in those who have gallstones. In gallstone patients there is often the feeling that vomiting would relieve the discomfort, yet it rarely comes on until late in the disease, and then in association with a more or less unmistakable biliary colic. In duodenal ulcer, vomiting is at times also entirely absent, as is illustrated in the case before noted.

The pain in the three conditions mentioned varies somewhat, although most careful questioning of the patient is needed in order to enable us to differentiate the varieties.

In gallstone disease it is often, at least in the beginning of the disease, more like a sense of constriction than an actual pain and often accompanied by a sensation of chilliness, which is characteristic. Moreover, it seems to involve the whole right side in a sensation of stiffness and soreness, but without marked tenderness, except in the presence of an acute cholecystitis. In gastric and duodenal ulcer marked early tenderness accompanies a pain sharply localized, as a rule, and directly dependent either on the ingestion of food or the entire emptying of the stomach. In gallstone disease there is often a certain amount of tenderness noted on deep pressure beneath the right costal margin.

Jaundice, hematemesis, etc., all of them late symptoms, will clarify the diagnosis, but are of little value early. Laboratory methods do not help us at all in the early diagnosis of upper abdominal disease; in fact, they rather tend to confuse than to aid us. It can easily be seen how difficult it is to make a diagnosis of early disease of the stomach, duodenum or gall bladder. Our constant endeavor should be to discover, if possible, new clinical data and aids to examination.

Yet whether we have gallstones, rebellious duodenal or gastric ulcers, or perigastric or pericholecystic adhesions, there is but one treatment—operation—and, while the close proximity of the organs leads to difficulty in diagnosis, it renders it possible for us to inspect them all at the time of operation. This statement should not be taken as an argument in favor of what I have elsewhere spoken of as the "therapeutic test" of an exploratory operation. The mere fact that all these lesions may be treated through one and the same incision is no justification for the surgeon's shirking his duty of making a correct diagnosis as often as possible.

A confusing factor in making a diagnosis is to be found in the presence of adhesions. Adhesions of the upper abdomen generally caused by an inflammatory process of low grade may involve any or all of the organs of this region, i. e., the biliary tract, stomach and colon, etc. Likewise they may cause symptoms simulating those of diseases of any of these organs.

I have seen pericholecystic adhesions give the whole syndrome of gallstones—colic, jaundice, etc.—and I remember particularly in this connection the case of one of my former internes, on whom I subsequently operated. I have frequently noticed that when adhesions have been present in gallstone cases the history of digestive disturbances has been perhaps somewhat more pronounced than in those instances in which they were not found. It is especially when we have adhesions about the gall bladder and ducts, which by constriction cause obstruction to the flow of bile and jaundice, that we are more uncertain whether we have a diseased condition within the gall bladder or totally outside of it. I am convinced, however, that such adhesions call just as strongly for surgical intervention, indeed even more so, for there is not even that slight chance of spontaneous recovery which we have with cholelithiasis.

It is not difficult to understand how adhesions involving the stomach, duodenum, or colon, especially if they be many and dense, can give ample grounds for diagnosing a serious organic condition of these organs themselves. They are, however, rather less often found, and hence of less importance, than those which we find about the gall bladder.

In the absence of any definite history of a previous inflammatory involvement of the peritoneum or operative procedure, I know of no way in which we can diagnose these adhesions.

It would leave the subject entirely incomplete were I to neglect to mention the part that the appendix may play in causing symptoms entirely referable to the upper abdomen. I have seen many such instances, and within the past year have operated in a number of cases of pylorospasm in which an appendicectomy removed all the symptoms.

But while in gallstones and ulcer the consequences of failure in diagnosis may be most serious, they are not so grave as in carcinoma of the stomach.

Cancer of the stomach was for years looked on as the utmost example of medical failure. A diagnosis was synonymous with a fatal prognosis, and never yet has a patient been cured, or become cured under medical treatment. But with the advances of surgery we have found that it may in some instances be cured, if it is operated on sufficiently early. Here is the main part of the treatment—the early diagnosis. Yet what were the symptoms of gastric carcinoma as we were taught, and as they are still taught to-day? Vomiting of retained food putrefaction of food, tumor, hemorrhage, the presence of the Oppler-Boas bacillus in the vomitus, and cachexia. These are not the signs of the presence of a cancer of the stomach, but of a marked stenosis of the pylorus as a result of such cancer. Crile says: "These are terminal symptoms, and indicate that the surgical opportunity is forever lost." In applying this statement to cancer of the stomach, we could well mention tumor and retention vomiting as the signs of lost opportunity.

It is but frank to say that in our present state of knowledge a certain diagnosis of gastric carcinoma in its incipiency is an impossibility. Yet we need not wait for terminal symptoms. It is far better to operate on an uncertain diagnosis than to allow the patient to pass the boundaries of our power to help him.

In most patients who develop cancer of the stomach we have either a history of well-developed gastric ulcer of the chronic type or, as is more often the case, of a chronic gastric catarrh. When in the presence of this condition a person of middle age develops more marked symptoms thereof and begins to complain of loss of weight and strength and perhaps some dull epigastric pain, we have the danger signal before us. Just as serious, or even more so, are these signs when they develop in an individual previously in good health and with good digestive powers.

We are gradually also beginning to appreciate the fact that carcinoma of the stomach is found far more frequently in people below middle age than we had previously supposed. Too great stress, then, should not be placed on a patient's comparative youth, if his symptoms are such as to cause us to suspect carcinoma of the stomach.

Naturally we can make no diagnosis at once—the symptoms will merely arouse suspicion. But suspicion will soon be turned to almost a certainty, if, in spite of careful treatment for six or eight weeks, the patient continues to get worse. The pain increases slightly, the loss in weight becomes more out of proportion to the dyspepsia, appetite vanishes, and, in addition to loss of flesh, we begin to note some anemia. Diagnosis of probable malignancy can now be made, and it is our duty to confirm and treat it surgically at once, without temporizing or drugging. At this stage of the disease the patient can stand a grave operation, the growth is localized and often removable, and our chances of permanent cure have not yet been lost. Two years ago I had occasion to operate in such a case and found a cancerous growth of the mucosa of the pylorus which had not yet involved the outer coats of the stomach and was not over three-quarters of an inch in breadth. A pylorectomy was easily done, and at last reports the patient was feeling as well as ever. A month's delay in this instance might have given some glandular metastasis, made necessary a partial or subtotal gastrectomy, instead of a simple pylorectomy, and thus lessened the patient's chances for final recovery at least 50 per cent.

The diagnosis of pancreatic conditions, except acute pancreatitis, is still a matter of great uncertainty; even the acute conditions of the organ are not easy to differentiate clinically at their onset.

To diagnose a subacute or chronic pancreatitis at any stage of the disease is a matter of difficulty. Perhaps the main reason for the rarity of correct diagnoses of chronic pancreatic disease is the failure to consider the pancreas as a source of long-continued digestive disturbances. Recent studies and monographs have brought greater attention to the subject, and of late Mayo Robson has advocated surgical treatment for the cure of the condition. I can recall several cases in which the patient gave a history of long-continued dyspepsia, that is to say, periods of dyspepsia with long intervals of apparently entire health. Associated with this have been epigastric distress, occasional attacks of pain in the epigastrium, especially to the left, inability to digest certain classes of food, and alternating diarrhea and constipation. Examination of the feces has at times shown an excess of undigested tissue fibers and fat. In a number of these cases operation was undertaken with a view to relieving the chronic pancreatitis by drainage of the biliary passages, and I have become convinced that this is the proper treatment in such cases. Of late years the Cammidge reaction has been employed in the diagnosis of pancreatic lesions, and, while the results are often open to question, I consider it of some value.

There are two most excellent reasons why a beginning sclerosing pancreatitis should be recognized and promptly dealt with. One is the increased possibility of the occurrence of carcinomatous growth in a pancreas the subject of advanced disease. The other, and still more important reason, is the frequent occurrence of an incurable and fatal diabetes as a result of chronic pancreatitis. When the disease has once reached this stage, any form of treatment is likely to be useless. I do not believe that chronic pancreatic lesions, even independent of gallstones, are nearly as rare as is supposed. Their frequent association with gallstone disease is, of course, well known. Their apparent rarity is largely due to the difficulties of diagnosis.

The conditions so far considered as offering a field for early diagnosis have been only the subacute and chronic lesions of the upper abdominal organs. There are two acute conditions in which an early diagnosis is still at times difficult, acute pancreatitis and perforative peritonitis.

Acute pancreatitis can often be diagnosed soon after the onset of the initial symptoms if we closely observe their sequence and occurrence. It almost always manifests its onset by sudden, sharp, epigastric pain, followed by vomiting, often accompanied by cyanosis. The pulse remains slow until we have considerable omental bursitis with absorption. The most prominent feature in the subsequent course of the disease—that is, within the next three or four days—is the apparent intestinal obstruction; and most marked of all the symptoms in this connection is the persistent belching so frequently noted in these cases, and due to the diaphragmatic irritation. Indeed, most cases of acute pancreatitis have been diagnosed as acute intestinal obstruction. In pancreatitis, however, it is possible in the course of a few days to procure good peristalsis, and thus to eliminate obstruction. We note very early in pancreatitis epigastric rigidity and excruciating pain.

The Cammidge reaction is of no value in the diagnosis of acute pancreatitis. More attention to the details of the symptomatology will no doubt enable us to distinguish most cases of acute pancreatitis from acute ileus, with which it is most often confused.

It may seem strange that perforative peritonitis of the upper abdomen has been included among the diseases often diagnosed too late, yet there is justification for so placing it. Mr. Moynihan has well pointed out, in a recent article, the fact that the symptoms for which we look at once, shock, rapid pulse, exquisite tenderness, etc., do not come on immediately after the perforation takes place, but only after a number of hours have passed. It has been my experience that the most valuable signs of perforation are the extreme, agonizing pain and rigidity of the abdominal muscles, including the diaphragm. The short, catchy respiration is characteristic and is due to the spasmodic fixation of the diaphragm. The pulse I have often found slow and of good volume, until we have the evidences of toxemia of peritoneal origin implanted on those of perforation itself. The tendency to look on the shock of a typical variety as a necessary symptom-complex to the diagnosis of such conditions as early perforative peritonitis and intestinal obstruction is too prevalent. I have often called attention to the fact that it is absent early in obstruction, and, as I see my cases of perforative peritonitis earlier, I find that the same holds true of them also.

It is, of course, unnecessary to dwell on the importance of early diagnosis and operation in cases of perforative peritonitis. Early we may and should be able to save the patients; late the cases are almost always hopeless.

It will be seen, then, that in all the subacute and chronic lesions of the upper abdomen an early diagnosis offers the only hope of successfully coping with the disease, whatever it may be. We should no more wait for a gastric or duodenal ulcer to perforate than we would wait for an inflamed appendix to do so. The physician who waits for common-duct impaction to diagnose gallstones is just as much to be censured as one who diagnoses acute appendicitis by the formation of an abscess.

With a carefully taken history, painstaking physical and clinical examination, the proper solution will be found in almost every case, and, a correct diagnosis once being made, surgical treatment in early cases is safe and sure of good result.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HERTZLER AND DEAVER

Dr. W. D. Haggard, Nashville, Tenn.: It is true that we are not nearly so keen in the early diagnosis of conditions in the right upper quadrant as we are of conditions in the lower abdomen and in the pelvis. You will recall how slow we were in the early recognition of appendicitis, ectopic gestation, ileus and other conditions in the pelvis, and how much we have learned, but how very ignorant we are when it comes to the diagnosis of conditions in the upper abdomen. I think that this is due to a lack of appreciation of the frequency of these maladies. If we will look on every patient who presents himself with indigestion as having some serious lesion of the stomach and gall-bladder, with or without complication, until the seriousness is disproved, we will have taken the first step in making a correct diagnosis. I agree that history taking is most important, and how common it is to look on these patients as having some neurosis of the stomach or gastritis, and never for a minute think of the possibility of the existence of gall-stones or chronic gastric ulcer. It is so easy to make a mistake in diagnosis when we insist on receiving answers from the patient that confirm our preconceived opinions, as when we look for evidence of specific disease. Therefore, it is better to believe that every patient is the victim of some serious lesion when he complains of dyspepsia, until the contrary can be proved. In gall-bladder disease the initial symptoms are not acute colic always, but rather flatulence in women "fair, fat and forty," and when such patients have discomfort, tenderness on pressure under the costal arch or in the area of Boas, feel generally unwell, and complaining of indigestion, we must not jump to the conclusion that they are neurotics. Neither are they all sufferers from gastritis; they probably have gall-stones.

In reference to the stomach and duodenum, while we do not always have a definite symptomatology, as in gall-bladder disease, at the same time there is, in many instances, a train of symptoms that should lead to careful consideration of the case. Take a case of duodenal ulcer in which the patient complains of a typical hunger pain before meals, and sometimes coming on at night, when he has to take a bite of something to relieve him. Whether that is relieved by the closure of the pylorus, stopping the flow of gastric juice over the ulcer, does not matter. It means duodenal ulcer, in the majority of cases. Recently I saw a boy of 17 who complained of stomach symptoms for several years, and who suddenly had a pain in the right upper quadrant of his abdomen, after four weeks of tenderness, elevated temperature, chills and sweats, with bulging of the right lower thorax, leucocytosis and the tympanitic area between the normal liver dulness and the pulmonary resonance enabled us to diagnose subphrenic ulcer. It resulted from a perforated duodenal ulcer. I feel that if we will pay more attention to the early history of these patients and get it accurately and honestly, we will make an effective step in the advancement of our diagnostic ability in the case of diseases in the upper abdomen.

Dr. Robert J. Morris, New York: We are not going to make any progress in this matter of the early diagnosis of upper abdominal disease until we have stopped considering dyspepsia as a diagnostic entity. A patient consults us complaining of dyspepsia and states that he has been treated for hyperacidity, for insufficiency of the pylorus or spasm of the pylorus. We must consider that these are merely symptoms and our examination has just begun with the diagnosis of dyspepsia. We are simply on the way toward a diagnosis. Recently I operated on a perforation of the duodenum, and the physician said that that was his second case within a month in persons who had been for two or more years under the care of a gastroenterologist for dyspepsia. It is not an easy matter to make a diagnosis, even when we go at the case very systematically. I have under my care at present a patient sent to me for ulcer of the duodenum. I had gone to work on the diagnosis by ruling out one thing after another, and after her eleven days of absolute constipation and a previous history of disturbance at times, I came to the conclusion that this was only a case of eyestrain. I have during the year every month some cases of dyspepsia due to eyestrain sent in for operation for gall-stones, duodenal ulcer, cancer of the pylorus, and my position is always this: So long as eyestrain does cause such symptoms in a certain proportion of cases, let us find the cases. That is a reasonable ground to take. Few of our ophthalmologists are competent to make this diagnosis. In the case referred to the patient's eyes have been examined by a most competent ophthalmologist. I asked him a few days ago whether he worked this case out with reference to imbalance of the eye muscles, and he told me he had not. We must not forget that similar symptoms are caused in a certain proportion of cases by gall-stones. Cases of gall-stones are often found at the deadhouse, in which it is said that the patient had no trouble from the presence of such stone—who knows? Such patients may have suffered for months or years or even a lifetime and with no diagnosis made, even though they told the physicians that they had gall-stones, and he said that it was not so.

Dr. Archibald MacLaren, St. Paul, Minn.: The pseudoperitonitis which Dr. Hertzler so well described seems to me to need immense consideration. The peritoneum does form a false membrane over each abscess, but Nature, it seems to me, is well able to take care of that pseudoperitoneum, as is well seen in so many operations for pelvic inflammatory disease. I remember years ago in the early history of abdominal surgery, where in a certain case the wall of a large pelvic abscess had been stitched to the peritoneal incision. Six months later I had to open that abdomen for some other cause and found nothing but a single thin fiddle string left. The dissection and stitching up of these flaps may occasionally be a good thing, but usually it is rather meddlesome surgery. Dr. J. N. Jackson recently described a false membrane which forms on top of the cecum and which, in his judgment, is to be dissected off. I have frequently seen the same result produced by simply dividing that membrane and loosening up the colon.

Dr. Deaver is unquestionably correct in regard to the difficulties of diagnosis in abdominal troubles. The wonder to me is that any court of law ever goes right; because these people come to us and try to tell their story, and there is no reason why they should not do so. And still, after half an hour's time spent in cross-examination, they will often say: "Why, I did have an attack of inflammation of the bowels two or three years ago." You can manufacture testimony for these people without any trouble, and the great difficulty is to avoid doing this very thing. In regard to gallstones, which have given no symptoms. When the patient is recovering from the operation where slumbering gallstones have been discovered and removed one can go back and always get a history, without any question, of gallstone dyspepsia so well described by Dr. Deaver.

Dr. A. E. Hertzler, Kansas City, Mo.: Dr. MacLaren's statement with regard to the "string" is correct; we all know that such strings produce intestinal obstruction. I want particularly to call attention to the reason why some adhesions are temporary and some permanent. As I stated in the beginning, there is the ordinary phenomenon of blood coagulation; when that process goes on undisturbed permanent adhesions result. In cases in which there are processes that ordinarily go on to precipitation the fibrin is not absorbed. In the last type referred to by Dr. MacLaren, the treatment is simply that of any varicocele—the ligation of the veins. Such ligation will relieve the congestion, just as ligation of the veins does in obstructive phenomena in other places.

Dr. J. B. Deaver, Philadelphia: It seems to me now to be a question of the education of the public, just as in the matter of appendicitis. If we will educate the public they will say as they do now in appendicitis: "Doctor, I want my appendix taken out. Doctor, I want my abdomen opened if you think there is a chronic ulcer." We must do with the gastroenterologists as we did with the gynecologists, set them aside. We must do with the gentlemen who are washing out stomachs and electrocuting them, acting on the minds of the patients as we did with the gynecologists, and it leaves, therefore, only the internist and the surgeon to handle these patients.

Another class of men who have only a very limited sphere are the roentgenologists. If we wait until a lesion is demonstrable by the Roentgen ray, it is too late for surgery to accomplish anything. We must recognize the early symptoms and not be afraid of advising abdominal exploration. I have heard men who held high positions say that it is a terrible responsibility. We must get that out of our heads. We must operate on our patients early if we wish for results.

RESULTS OF THREE YEARS' EXPERIENCE IN BACTERIAL IMMUNIZATION *

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Two years ago in a contribution[1] read before the Philadelphia County Medical Society on the subject of opsonins, I made the following statements: 1. "In the heralded unlimited field of therapy, where the opsonic index is ordained to play a star rôle, its utility seems destined to pass into oblivion, not only because of its inconstancy in agreement with the clinical symptomatology, but especially because of its [illegible]." 2. "Although my experience thus far [illegible] autoinoculations has been most gratifying and my results in close harmony with those of other observers, I am disposed to believe that there is a tendency to overvaluation even in this method of therapy." To-day I am more than ever convinced of the correctness of that stand and I doubt very much if at present Wright himself believes, literally, his statement promulgated a few years since, that "by means of these bacterial vaccines we have, in the power of raising the antibacterial power of the blood, with respect to any invading microbe, out of all comparison, the most valuable asset in medicine."

It is ever a fact in medicine that when truly important discoveries are announced the pendulum of applicability and utility, at first, either swings too far or not far enough. Valuable, indeed, as bacterin therapy has proved itself to be in an extensive category of affections to which the human organism is subject, it was and still is, in a measure, the victim of the former evil. Time and experience have gradually shaped the destiny of opsonotherapy or bacterial immunization, and the practitioner conversant with the current medical literature has already formed a more or less correct judgment on the merits of biologic therapeutics.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the William Pepper Laboratory of Clinical Medicine of the University of Pennsylvania.

[1] Variability and Unreliability in the Determination of the Opsonic Index, The Journal A. M. A., Oct. 12, 1907, xlix, 1219.

That inoculation by bacterin, in properly selected cases, plays an extremely important rôle in convalescence is indisputable. That failure to obtain expected results is due often to ignorance or a misapplication of this particular kind of treatment in contraindicated cases, thereby unjustly placing active immunization in disrepute with many clinicians, is unquestionable. I dare say that were a ballot taken of average physicians as to whether or not active immunization should be employed in a given case of septicemia, a positive vote would be cast. From my experiences nothing could be more erroneous. The defenses of the organism have already been exhausted and broken down, which accounts for the occurrence of the bacteriemia. How illogical, therefore, the introduction of an antigen, in the hope of stimulating these body cells to the production of antibodies, when their supply has already been consumed! We must not expect the impossible from bacterin therapy. The condition can be likened to the overzealous, but indiscreet jockey, who vainly hopes to win in the close finish race by relentlessly flogging his exhausted thoroughbred. Scientifically considered from the standpoint of anaphylaxis, it is not improbable, in cases of bacteriemia, that the inoculation of bacterin may not only do no good, but actually result harmfully. The organism is already in a state of hypersusceptibility induced by an overwhelming autogenous antigen, when, if the theory of Vaughan be correct, albumin in the body is broken up into the toxic and non-toxic group. At the time of the heterogenous injection of dead bacteria, the body attacks the albumin so vigorously and releases so much of the toxic group that it is overcome by the poisonous radical. On the other hand, late in the course of the disease, if the patient survives, it must be recalled that the inoculation of dead bacteria may act beneficially. Such has been the experience of Rosenow[2] in chronic septic endocarditis. I have had no success in this class of cases, and when improvement or cure has ensued I have been inclined to attribute it to Providence rather than to bacterin therapy.

Finally, overdependence on the opsonic index as a guide, and carelessness or inattention to certain clinical signs and symptoms, be they ever so slight and seemingly trivial in nature, or an irrepressible enthusiasm to *"push the treatment"* as soon as improvement becomes manifest, invariably leads to disappointment, if not to utter failure and disaster. This is particularly true of tuberculous affections, in which a prolonged, tedious and cautious course of treatment of six to twelve months' duration must be instituted.

The unanimous interest in and practical importance of active immunization make it the imperative duty of every practitioner, individually and collectively, to determine as early as possible precisely in what class of affections bacterin therapy shall and shall not be utilized. The problem is shrouded in many difficulties owing to the variability in the application of the treatment, so that results necessarily differ. For instance, some observers rely implicitly on the opsonic index as the guide in dosage; others maintain that the clinical symptomatology is all-sufficient; some pin their faith to autogenous bacterins; others claim that the stock preparations are equally or more meritorious; some advocate inoculations, comparatively, of large size; others, minimum dosage; some draw their conclusions following biologic therapy alone; others refuse to discard old measures of proved worth and insist on associating bacterin therapy only with the former; some are gifted with excellent judgment and possess keen powers of observation, while others are indifferent, careless and overenthusiastic or prejudiced. These disadvantages can be overcome only by a persistent effort on the part of the profession to continue the search for the truth by the multiplication of case reports.

It is very easy in noting results following an attempt at immunization to become either an optimist or a pessimist, depending on whether one is an advocate or a doubter of the method. In this report it has been my avowed purpose to communicate the results of all cases, good, bad and indifferent, of all cases treated, in the belief that only by such statements can we ever hope to solve this question in its entirety. Certainly, the report of sporadic cases, with only brilliant results, from time to time, may lead to erroneous conclusions.

It has been my fortune to employ bacterin therapy in 106 various affections, among which the following bacteria were isolated for the preparation of autogenous bacterins. In a few instances, notably in gonorrheal and tuberculous affections, a stock bacterin was employed.

Bacteria.	Infections.
1. *Micrococcus albus*	18
2. *Micrococcus aureus*	38
3. *Bacillus coli communis*	6
4. *Bacterium ferrugineum*	1
5. *Bacillus fluorescens*	2
6. *Micrococcus gonorrhœæ*	19
7. *Bacillus proteus vulgaris*	2
8. *Bacterium punctatum*	1
9. *Bacillus pyocyaneus*	3
10. *Streptococcus pyogenes*	10
11. *Bacillus tuberculosis*	19
	119

In all, fifty distinct diseases were treated. Both by desire and virtue of circumstances, the time-honored measures of proved worth were never abolished from treatment during the periods of bacterial inoculations, because I have always considered bacterin therapy as an accessory, not as a specific agent. It was never intended to be, nor will it ever be, a "cure-all," but should be regarded as an aid to assist Nature in properly selected cases, to combat infection by fortifying the organism through the production of immunization by antibodies. Moreover, it is the acknowledged duty of the physician to employ all the useful measures at his command in the treatment of his patient and not to experiment with human life in order to determine the efficacy of a new remedial agent, although by such a course the problem might be speedily solved. Consequently, in many instances, it has been a difficult matter to decide how much of the cure should be attributed to the usual method of treatment, and how much to bacterial immunization. I have striven throughout to give an unprejudiced opinion, and in dubious cases have refrained from placing the credit to bacterin inoculations. Nevertheless, in certain classes of cases, the results have been consistently so striking that the value of inoculation by dead bacteria is undeniable.

ABSCESSES

A review of the table of cases indicates that in the treatment of abscesses a fruitful field is afforded for bacterin therapy. Two deaths have occurred in my series, but they were both instances in which active

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[2] Rosenow: Jour. Infect. Dis., April, 1909.

TABLE OF CASES

No.	Case.	Age.	Disease.	Bacteria.	Duration of Disease.	Bacterin.		Number of Inoculations	Average Dose of Inoculations.	Duration of Treatment.	Remarks.	Result
						Autogenous.	Stock.					
			ABSCESS									
1	W. M..	3	Axillary	B. tuberculosis M. aureus and albus	1 yr....	.. +	+	8	B.=100,000,000; T.=.00005 mg..	3 mos....	General tuberculosis. Mixed infection. Pyemia. Pulmonary hemorrhage.	Death.
2	A. G...	23	Pulmonary	B. coli communis Streptococcus pyogenes	12 yrs..	+	..	3	C.=250,000,0'0; S.=50,000,000..	10 dys....	Expectoration very profuse (12 oz. a day) and malodorous . Still under observation. Negative for T. B.	Negative.
3	L. C...	4	Multiple subcutaneous	M. aureus	10 dys..	+	..	2	200,000,000	2 wks....	Complicated convalescence following extensive burns.	Cure.
4	J. Z...	22	Multiple subcutaneous	M. aureus	1 wk...	+	..	3	400,000,000	10 dys....	Complicated convalescence following typhoid fever...	Cure.
5	A. B....	24	Pelvic	M. aureus M. albus	3 mos..	+	..	6	500,000,000	1½ mos..	Sponge left in abdomen at time of operation causing abscess and rectal fistula.	Improvement.
6	R. G...	22	Pelvic	B. pyocyaneus B. coli communis B. tuberculosis	3 wks..	+	..	1	400,000,000	2 wks....	High, irregular fever. Very septic. Followed laparotomy. Pleuropneumonia. Sputum = T. B.	Death.
7	W.F ..	40	Subdiaphragmatic	M. aureus M. albus	2 wks..	+	..	12	300,000,000	5 wks....	Suppuration following operation was very profuse and persistent.	Cure.
			SINUS									
8	B. S....	17	Jaw	M. aureus	1 mo...	+	..	19	250 to 800,000,000	19 wks...	Osteomyelitis was associated with the persistent suppuration. Progressive gain in weight occurred.	Cure.
9	R. G...	22	Abdomen	B. coli communis B. pyocyaneus B. tuberculosis	3 wks..	+	..	1	400,000,000	2 wks....	See Case 6. Very septic from pelvic abscess. No tuberculin treatment.	Death.
10	W. M..	3	Knee	B. tuberculosis M. aureus and albus	1 yr....	.. +	+	8	B.=100,000,000; T.=.00005 mg..	3 mos....	Pulmonary hemorrhage. See Case 1. General tuberculosis. Mixed infection. Very septic.	Death.
11	H. G. L.	37	Malar	M. albus M. aureus	1 yr....	.. +	..	8	500,000,000	2½ mos..	Persistent sinus in rt. malar region for months, on which the best surgeons in Philadelphia had operated. Bier treatment.	Cure.
12	U. W..	62	Mouth	Streptococcus pyogenes M. albus	2 wks..	+	..	3	S.=100,000,000; M.=200,000,000	3 wks....	Sinus resulted following initial lymphadenectomy for carcinoma of lip.	Negative.
			FISTULA									
13	G. C. F.	57	In ano	M. albus	3 mos..	+	..	6	200,000,000	6 wks....	Small, slightly suppurating sinus in anal region, associated at times with induration. Bier treatment.	Negative.
14	A. B...	24	Rectal	M. aureus and albus	3 mos..	+	..	6	500,000,000	1½ mos .	Formed from pelvic abscess. See Case 5.	Improvement.
15	A. B...	24	Vesical	M. aureus M. aureus and albus	3 mos..	+	..	6	500,000,000	1½ mos..	See Cases 5 and 14. Subsequently entirely recovered. Undetermined as to whether fistula is vesical or urethral.	Improvement.
			EMPYEMA									
16	M. McK.	17	Thoracic	B. pyocyaneus	4 wks..	+	..	3	400,000,000	3 wks....	Developed pleurisy and pleural effusion following appendectomy. Rib resection. Drainage. Sapremia.	Death.
17	A. L...	18	Thoracic	M. albus M. aureus	1 yr....	.. +	.. ..	.. 17	400 to 800,000,000	5 mos....	Has had two or three operations, but discharge has always persisted. Sequestrum removed. M. albus disappeared. Bier treatment associated.	Marked improvement.
			POSTOPERATIVE INFECTIONS									
18	M......	45	Gastroenterostomy	B. coli communis	2 wks..	..	+	1	80,000,000	5 dys....	Persistent suppuration from laparotomy wound following gastroenterostomy for inoperable carcinoma.	Improvement.
19	M. B...	45	Partial gastrectomy	M. aureus B. coli communis	3 wks..	..	+	2	100,000,000	2 wks....	Infection of laparotomy wound following partial resection of stomach.	Cure.
20	DeG...	50	Erasion of bubo	B. punctatum M. aureus	1 wk...	+	..	4	300,000,000	3 wks....	Following operation a typical phagedena of abdominal wall occurred. Completely stopped following first inoculation.	Improvement.
21	P......	40	Fracture of patella	M. aureus	5 dys...	+	..	3	250,000,000	2 wks....	Patella was wired and infection occurred between fascia and skin. Patient very fat.	Improvement.
22	D......	48	Breast amputation	B. pyocyaneus	2 wks..	+	..	4	180,000,000	2 wks....	Persistent suppuration following operation. Patient had renal complications and very stout.	Death.
23	F......	30	Hypoglossofacial anastomosis.	Streptococcus pyogenes	2 dys...	+	..	2	75,000,000	1 wk.....	A diffuse cellulitis occurred on the side of the neck operated. Patient's improvement was prompt.	Cure.
24	D......	30	Craniotomy	M. aureus	2 wks..	+	..	3	200,000,000	3 wks....	No appreciable effect. Fungus cerebri developed......	Negative.
25	J. L...	35	Craniotomy	M albus	3 wks..	+	.	2	300,000,000	2 wks....	Mental aberration prevented a continuation of treatment, patient refusing to have the hypodermic needle.	Negative.
26	McE...	40	Craniotomy	M. aureus	2 wks..	+	..	8	400,000,000	7 wks....	Mental symptoms and symptoms of meningitis supervened. Suppuration steadily decreased and temperature fell.	Improvement.
			OTITIS MEDIA									
27	M. T ..	10	Chronic suppuration	B. ferrugineum.	9 yrs...	+	..	6	100,000,000	5 wks....	Immediately following inoculations, discharge from ear has increased. Still under treatment.	Negative.
			OSTEOMYELITIS									
28	S. S....	19	Tibia, acute	M. aureus	3 dys...	+	..	3	150,000,000	10 dys....	A blood culture early showed Micrococci aureus following operation. Treatment was futile. Patient worse. Still under treatment.	Negative.
29	J	41	Tibia, chronic	M. aureus M. albus B. fluorescens	6 mos..	+	..	1	400,000,000	1 wk....	Following compound fracture of leg, a sinus has persisted for months. No evidence of caries.	Improvement.

			OSTEOPERIOSTITIS									
30	E. R...	28	Gonorrheal osteophytes......	M. gonorrhœæ.............	1 yr....	..	+	6	20,000,000.........	1 mo.....	X-ray demonstrated exostoses of both ossa calcis. Repeated gonorrheal infection. Walking, on account of pain at times, was almost unbearable.	Improvement.
			PROSTATITIS									
31	E. R...	28	Gonorrheal, chronic..........	M. gonorrhœæ.............	1 yr....	..	+	6	20,000,000.........	4 wks....	Treatment by inoculations, associated with prostatic massage and passage of urethral sounds.	Improvement.
			URETHRITIS									
32	E. R...	28	Posterior, chronic...........	M. gonorrhœæ.............	12 mos.	..	+	6	20,000,000.........	1 mo.....	At end of four weeks two-glass test showed urine to be practically free of shreds. See Cases 30 and 31.	Cure.
			CELLULITIS									
33	M. P.T.	60	Hand and forearm...........	Streptococcus pyogenes.... M. aureus.................	2 wks..	+	..	3	S.=56,250,000; A.=300,000,000	9 dys.....	Patient's vitality was very poor. Slight temporary improvement as regards suppuration. Osteomyelitis. Amputation of finger.	Negative.
34	DeG...	50	Abdominal wall..............	B. punctatum.............. M. aureus.................	1 wk...	+	..	4	300,000,000........	3 wks....	See Case 20..................................	Improvement.
35	F......	39	Neck	Streptococcus pyogenes....	2 dys...	+	..	2	75,000,000.........	1 wk.....	See Case 23..................................	Cure.
			CYSTITIS									
36	J.......	26	Urinary......................	B. coli communis..........	6 wks..	+	..	2	500,000,000........	30 dys....	Patient had vesical symptoms for a year, but pyuria was markedly increased recently following childbirth. Dr. Ohlmacher of Detroit, to whom patient was referred for further treatment, reports that improvement has occurred.	Improvement.
			VULVOVAGINITIS									
37 to 49	Ward cases in Philadelphia Hospital.	2 to 10	Gonorrheal.	M. gonorrhœæ.............	?	..	+	3 to 10	5,000,000..........	9 to 30 dys.	The stay of the patient in the hospital was shortened in every case. Smears were taken from all the children prior to treatment and the diplococcus was always demonstrable. Its earliest disappearance occurred after the second inoculation. In one case no local treatment was given and a brilliant result followed.	Improvement.
			TENOSYNOVITIS									
50	G. M...	45	Suppurative, wrist and forearm.	M. aureus..................	4 wks..	+	..	4	400,000,000........	4 wks....	Infection arose from wound of hand. Several operations on hand and forearm ensued, but suppuration and swelling persisted, threatening septicemia. Immediate response.	Improvement.
51	M. P.T.	60	Fingers, hand and wrist, subacute.	Streptococcus pyogenes.... M. aureus.................	2 wks..	+	..	3	S.=56,250,000; A.=300,000,000	9 dys	Patient was rheumatic, decrepit and victim of weak heart. Improvement inconspicuous. Osteomyelitis. Amputation.	Negative.
			ARTHRITIS									
52	W. M..	3	Infectious, suppurative, acute, wrist.	M. aureus.................. M. albus..................	2 wks..	+	..	7	100,000,000........	3 mos....	Several sinuses discharged quantities of pus in vicinity of wrist joint. T. B. Osteomyelitis may be present.	Negative.
53	C.......	20	Infectious, suppurative, acute, knee	M. aureus..................	4 wks..	+	..	4	400,000,000........	4 wks....	Suppuration was persistent and profuse. Osteomyelitis. Amputation. Recovery.	Negative.
54	O. S....	18	Infectious, subacute, knees..	M. albus..................	W eeks	+	..	3	300,000,000........	3 wks....	Culture of aspirated fluid from knee demonstrated M. albus. Infection was evidently hematogenous.	Negative.
55	C. M...	20	Infectious, gonorrheal, chronic, knee.	M. gonorrhœæ.............	Weeks.	..	+	2	50,000,000.........	3 wks....	Diagnosis made from history and clinical symptoms. Organism not isolated.	Improvement.
56	A. G...	16	Infectious, gonorrheal, acute, wrist.	M. gonorrhœæ.............	4 wks..	..	+	3	50,000,000.........	3 wks....	Organism not isolated. Swelling quickly subsided....	Cure.
57	J. A....	22	Infectious, gonorrheal, acute, knee.	M. gonorrhœæ.............	5 wks..	..	+	4	50,000,000.........	4 wks....	History very clear. Local urethral treatment. Arthrotomy considered because of great swelling and pain. Response to inoculations was decisive.	Cure.
58	C.......	21	Infectious, gonorrheal, chronic, knee.	M. gonorrhœæ.............	5 yrs...	..	+	1	50,000,000.........	1 wk.....	Motion in joint is almost nil. Patella fixed. Has been quiescent for years, until recent trauma relighted the process. Under treatment at present.	Improvement.
			ERYSIPELAS									
59	U. W..	62	Acute, face and neck.........	Streptococcus pyogenes....	2 dys...	+	..	1	100,000,000........	5 dys.....	After subsidence of temperature and healing of mouth sinus, infection occurred two weeks after operation.	Cure.
60	J. B. C.	35	Recurrens, thighs and legs...	Streptococcus pyogenes....	13 yrs..	..	+	4	50,000,000.........	6 wks....	Both legs in a state of chronic hyperplasia of the connective tissue. For years has been subject to irregular attacks of erysipelas in both thighs, especially occurring in spring.	Improvement.
			ACNE VULGARIS									
61	H. E. T.	15	Pustular.....................	M. albus..................	2 yrs...	+	..	18	1,000,000,000......	6 mos....	Internal medication of Hydrarg. Chlorid. Corrosivi.	Improvement.
62	B. E...	23	Pustular.....................	M. albus.................. M. aureus..................	7 yrs...	+ +	..	24	800,000,000........	1 yr	Treatment suspended for five months in winter. Mercury, strychnin and iron pill. Hygienic treatment.	Improvement.
63	E. W. C.	18	Pustular.....................	M. albus..................	5 yrs...	+	..	13	900,000,000........	22 wks...	Nose and throat treatment for nasal obstruction and catarrh. Mercury, strichnin and iron pill. Dietetic and hygienic treatment.	Improvement.
64	L. B....	21	Pustular.....................	M. albus..................	2 yrs...	+	..	6	500,000,000........	6 wks....	Operation for goiter. Tonic and sedative treatment.	Cure.
65	J. B. K.	40	Pustular.....................	M. aureus..................	15 yrs..	+	..	5	880,000,000........	2 mos....	Sexual neurasthenia. General dietetic and hygienic rules. Nux vomica and arsenic pill. Triple valerianate pill.	Cure.
			FURUNCULOSIS									
66	W. S...	35	Forearm	M. aureus..................	1 wk...	+	..	2	350,000,000........	10 dys....	Incision and drainage. Bier cup......................	Cure.
67	J. H. S.	19	Neck	M. aureus..................	3 wks..	+	..	4	400,000,000........	4 wks....	Incision and drainage. Bier cup......................	Cure.
68	W.	21	Neck	M. aureus..................	3 wks..	+	..	3	325,000,000........	3 wks....	Incision and drainage. Bier cup. Health run down. Recurrences.	Cure.
69	L.	22	Axilla........................	M. aureus..................	2 wks..	+	..	4	425,000,000........	5 wks....	A dermatitis or eczema of chronic type seemed to be the original cause and focus for recurrences.	Cure.
70	E. V. J.	30	Back	M. aureus..................	3 mos..	+	..	4	500,000,000........	2 wks....	Health run down. Nervous. Boils occurred previously on nose and finger. General tonic treatment.	Cure.
71	J. Z....	22	Back	M. aureus..................	1 wk...	+	..	3	400,000,000........	10 dys....	Complication of typhoid fever. None occurred after first inoculation.	Cure.

TABLE OF CASES—(Continued)

No.	Case.	Age.	Disease.	Bacteria.	Duration of Disease.	Bacterin. Autogenous.	Bacterin. Stock.	No. of Inoculations.	Average Dose of Inoculations.	Duration of Treatment.	Remarks.	Result
			CARBUNCULOSIS									
72	G.	65	Neck	M. aureus	3 wks.	+	..	2	880,000,000	5 dys.	*Delirious for two weeks. Pyelonephritis. Pneumonia.* Myocarditis. Heroic stimulation. Urine and lungs cleared up immed. Carbuncle speedily granulated.	*Improvement.*
73	C. S. Jr.	45	Neck	M. aureus	2 wks.	+	..	2	400,000,000	5 dys.	Small incision for drainage	Cure.
74	S.	42	Neck	M. aureus	2 wks.	+	..	3	450,000,000	2 wks.	Carbuncle of neck healed very speedily. Bier cup. During convales. abscess of ischio-rectal space formed.	Cure.
75	McM.	34	Neck and forearm	M. aureus	3 wks.	+	..	2	400,000,000	2 wks.	Incision and drainage. Bier cup	Cure.
76	S. F.	35	Chin	M. aureus	4 wks.	+	..	3	450,000,000	3 wks.	Huntingdon's chorea. Stock bacterin prepared from eight different strains of cultures employed.	Cure.
77	L. C. B.	29	Neck	M. aureus	1 wk.	+	..	4	500,000,000	3 wks.	Incision and drainage. Bier cup. Recurrence	Cure.
78	B.	33	Neck	M. aureus	2 wks.	+	..	2	400,000,000	2 wks.	Incision and drainage. Bier cup	Cure.
			TUBERCULOSIS									
79	W. M.	3	Elbow	B. tuberculosis M. aureus and albus	1 yr.	.. +	+	8	B.=100,000,000; T.=.00005 mg.	3 mos.	Mixed infection. Pyemia. General tuberculosis. Pulmonary hemorrhage.	Death.
80	A. T.	18	Enteritis	B. tuberculosis	2 mos.	..	+	2	.0001 mg.	2 wks.	Patient greatly emaciated and grew steadily worse	Death.
81	C. B.	5	Epiphysitis, tibia	B. tuberculosis	4 wks.	..	+	3	"B. E.," .0001; "B.F.," .001 mg.	3 wks.	Following third inoculation, which was less than its predecessor, temp. rose considerably and was maintained, child dying of miliary tuberculosis.	Death.
82	W. M.	3	Face	B. tuberculosis M. aureus and albus	12 mos.	.. +	+	8	B.=100,000,000; T.=.00005 mg.	3 mos.	See Cases 1, 10, 52 and 79. Pyemia	Death.
83	K. D.	45	Hip	B. tuberculosis B. pyocyaneus	4 mos.	.. +	+	7	B.=300,000,000 T.=.0001 mg.	5 mos.	Pulmonary tuberculosis complicated treatment	Death.
84	T.H., Jr.	5	Sacroiliac	B. tuberculosis B. proteus vulgaris B. coli communis	6 mos.	..	+	9	200,000,000	2 mos.	Child very anemic and waxy in appearance	Improvement.
85	G.	19	Hip	B. tuberculosis	4 wks.	..	+	19	.0002 to 005 mg.	9 mos.	Intermission of five months without treatment	Improvement.
86	T. M.	18	Hip	B. tuberculosis	3 wks.	..	+	15	B.=400,090,000; T.=0.0001	3 mos.	Beck's bismuth injection acted deleteriously and complicated inoculation treatment. Mixed infection.	Improvement.
87	J. C.	4	Hip	M. aureus Streptococcus pyogenes	.... 2 wks.	+ +	..	21	B.=200,000,000 T.=.0003	4 mos.	Fresh air and antituberculosis measures	Improvement.
88	J. B.	8	Hip	M. aureus and albus B. tuberculosis	.... 5 wks.	+ ..	+	12	B.=200,000,000; T.=.0002	10 wks.	Fresh air and antituberculosis measures	Improvement.
89	W. M.	3	Knee	M. albus B. tuberculosis	.... 12 mos.	+ ..	+	8	B.=100,000,000; T.=.00005	12 wks.	See Cases 1, 10, 52, 79 and 82. Pyemia	Death.
90	I. W.	3	Mastoid	M. albus and aureus B. tuberculosis	.... 1 wk.	+ ..	+	3	0.0001 mg.	10 dys.	Temperature dropped to normal quickly. Wound granulated rapidly. General tonic treatment.	Improvement.
91	N. A.	7	Mastoid	B. tuberculosis	2 wks.	.	+	4	0.0001 mg.	4 wks.	Wound healed speedily. At same time an epiphysitis of metacarpal bone subsided.	Improvement.
92	N. A.	7	Epiphysitis, metacarpal	B. tuberculosis	2 wks.	..	+	4	0.0001 mg.	4 wks.	Immobilization of metacarpal phalangeal joints. General antituberculosis measures.	Improvement.
93	L. H.	30	Peritoneum	B. tuberculosis	1 wk.	..	+	56	0.0001 to 6 mg.	10 mos.	Ordinary tuberculosis *measures. Has gained 10 lbs.* in weight. Peritoneum at time of exploratory laparotomy was literally covered with tubercles.	*Cure.*
94	K. D.	45	Lungs	B. pyocyaneus B. tuberculosis	4 mos.	+ 	.. +	7	B.=300,000,000: T.=.0001	4 mos.	See Case 83. Condition incidental to tuberculosis of hip, where there was a mixed infection.	Death.
95	W. M.	3	Lungs	B. tuberculosis	12 mos.	..	+	8	B.=100,000,000; T.=.00005	3 mos.	See Cases 1, 10, 52, 79, 82 and 80. Pyemia	Death.
96	P.	45	Shoulder	M. albus and aureus B. tuberculosis	.... 6 yrs.	+ ..	+	21	0.00000002 mg.	8 mos.	Shoulder resected years before. Anemic. Cardiac dilatation. Developed pelvic abscess. (T. B.)	Death.
97	J. T.	4	Hip	B. tuberculosis	3 wks.	..	+	2	0.00000005 mg.	2 wks.	Obliged to suspend inoculations. No result	Negative.
98	R.	38	Spine	B. tuberculosis	4 wks.	..	+	7	0.00000001 mg.	7 wks.	Discharged *from hospital*	Improved.
99	J.	20	Hip	B. tuberculosis	3 wks.	..	+	3	100,000,000	3 wks.	Usual antituberculous treatment. Temperature fell.	Improvement.
100	C.	22	Spine	M. aureus B. tuberculosis Streptococcus pyogenes	.... 2 wks.	+ ..	+	4	300,000,000	4 wks.	Suppuration decreased markedly. Posas abscess	Improvement.
101	C. Y.	14	Spine	M. aureus. B pyocyaneus. B. tuberculosis	6 mos.	..	+	6	B.=200,000,000; T.=.0001	6 wks.	Vitality very low. Iliac abscesses	Improvement.
102	H. H.	25	Spine	M. aureus and streptococcus. B. tuberculosis	.... 1 mo.	+ ..	+	11	B.=350,000,000; T.=.0001	3 mos.	Three weeks after injection of Beck's bismuth paste patient developed pulmonary hemorrhages and died.	Death.
103	E. J.	5	Spine	M. aureus B. tuberculosis	.... 4 wks.	+ ..	+	21	B.=400,000,000; T.=.0002	4 mos.	Psoas abscesses. Temperature steadily decreased. Gained weight.	Improvement.
104	S. Y.	4	Spine	M. aureus B. tuberculosis	.... 3 wks.	+ ..	+	5	200,000,000	4 wks.	Suppuration lessened markedly. Temperature lower.	*Improvement.*
105	A. M.	4	Spine	M. aureus B. tuberculosis	7 wks.	..	+	5	200,000,000	4 wks.	Suppuration decreased. *Temperature lower*	*Improvement*
106	T.H., Jr.	5	Spine	B. fluorescens B. tuberculosis B. proteus vulgaris B. coli communis	6 mos.	.. + +	+	9	B.=200,000,000; T.=0.00005	2 mos.	Associated with sacro-iliac disease. Anemia	Improvement.

immunization was clearly contraindicated. In one, Case 1, the patient was in an advanced stage of tuberculosis and the victim of pyemia; in the other, Case 6, the patient was very septic and had the complication of pulmonary tuberculosis with pleuropneumonia, superadded to which the pus from the abscess, together with other organisms, demonstrated the *Bacillus pyocyaneus,* a bacterium which, in my experience, has always been a bad omen and with the bacterin of which in therapy I have never been able to obtain the slightest success. I am unable to explain this fact, save that it is usually an infection superimposed on a previous suppuration, and is independent of the particular bacterium causing the primary infection; that is, it acts as a scavenger of the primary suppuration—a pus parasite, as it were. It would seem, therefore, illogical to expect that anything can be gained by stimulating, through inoculation, the cells of the human organism to the production of antibodies, by the bacterin of a bacterium which in itself may be entirely dependent on the action and products of a pre-existing infection. Especially is this true if we may accept the theory of the specificity of opsonins.

In multiple subcutaneous or superficial abscesses, either acute or chronic, the results have been most brilliant. In two instances, Cases 3 and 4, not a single abscess developed after the first bacterial inoculation and the pre-existent ones disappeared in remarkably short time. The clinical course of one of these cases is represented in Chart 1, associated with the temperature curve of which the phase of the opsonic index is plotted and the time of the active immunization noted.

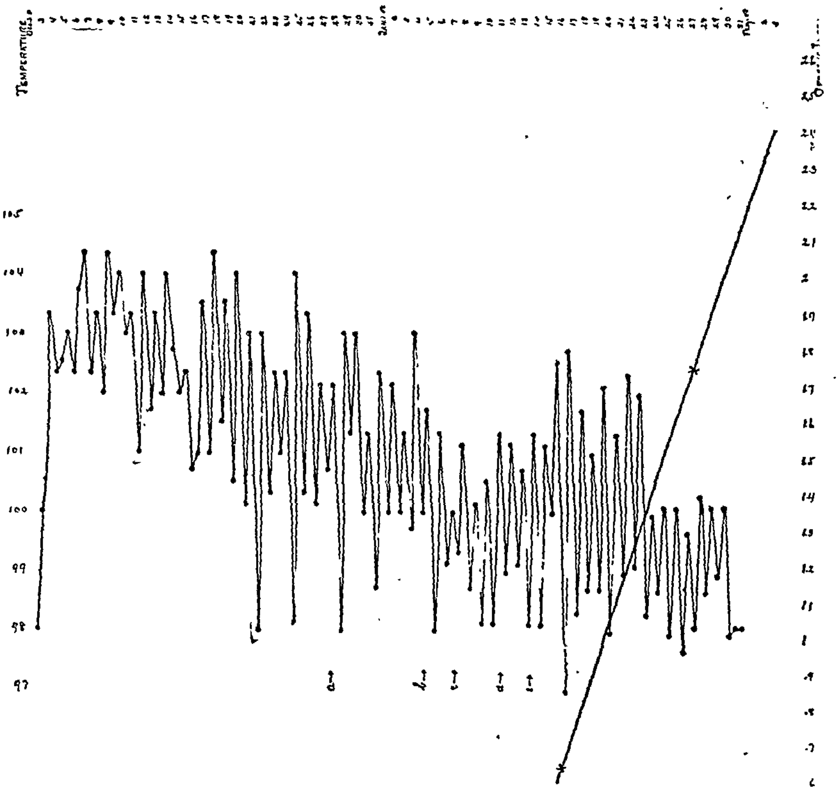

Chart 1.—Temperature (zigzag line) and opsonic index (straight diagonal line). Patient, L. C.: burns one-third to one-half body surface; multiple subcutaneous abscesses; a, skin grafts to arm and leg; b, development of scalp abscesses; c, marked loss of weight and strength; d, many subcutaneous abscesses evacuated; e, pus cultured from new abscess demonstrated micrococcus aureus. The small crosses on the diagonal line indicate inoculation with *M. aureus* bacterin, 205,000,000 bacterin. Note the parallelism existing between opsonic index and improvement in the condition and health of the patient. Note also that no new abscesses formed after the first inoculation of bacterin and the rapidity of disappearance of the recurrent pre-existent subcutaneous abscesses.

In conjunction with this I desire to call attention to the important fact that the opsonic index may be very variable and unreliable as a control of the dosage and spacing of the bacterial inoculations. For example, in Chart 1, the coincidence between the clinical symptoms and opsonic index was beautiful and all that could be desired. On the contrary, compare Chart 2 of the opsonic index of Case 65. In this instance, after an initial rise, the index fell into the "negative phase" and remained there in spite of the fact that, after four inoculations, the pustules disappeared permanently from the face of the patient, who had been a sufferer from acne vulgaris for fifteen years. From these and numerous other experiences, I have come to allow the clinical symptomatology to serve always as the paramount guide in the administration of bacterial inoculations. In my early work, and occasionally subsequently, the index was associated for what it might reveal in the nature of confirmation, but never to supersede the clinical symptoms as a factor in treatment.

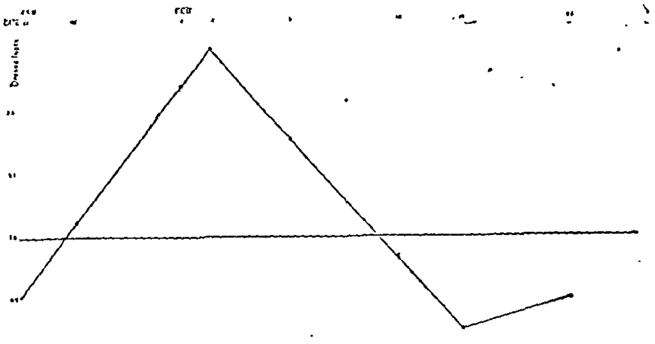

Chart 2.—Opsonic index. Patient, J. K.; acne vulgaris. The crosses on the line indicate bacterin inoculations, 880,000,000 *M. aureus.* Observe that after an initial rise the opsonic index persistently fell to the negative phase, where it remained, although a pustular acne existing for fifteen years permanently disappeared. The unreliability of the opsonic index could scarcely be better demonstrated.

In order to illustrate how ideally the symptomatology may be utilized in the conduct of bacterin therapy, to the exclusion of the opsonic index, permit me to present Chart 3 of Case 7 of my series.

SINUSES

Here, again, bacterin therapy is of undoubted value, although the results are not so striking, a much longer period being necessary to effect a cure. One cause partially responsible for this is that not infrequently carious bone or a foreign body lies at the bottom of the sinus. We cannot be expected to remove dead or dying tissue. This is the province of the surgeon. Another cause for the tardy improvement can be ascribed to the fact that these sinuses are frequently surrounded by dense fibrous tissue, crowding out granulations; hence the supply of blood and lymph necessary for the healing process. Then, too, the few lymph spaces that do exist have their orifices occluded by coagulated fibrin and necrotic tissue, preventing the lymph system from properly bathing the sinus wall.

This can be obviated to a degree, theoretically at least, as Wright has observed, by the irrigation of these tracts with a solution consisting of 0.5 per cent. sodium citrate in 5 per cent. salt or 10 per cent. sugar solution, which possesses the power of decalcification or defibrination and promotion of osmosis.

Death occurred in two of the five cases in the series, as will be observed, but it must be borne in mind, in justification to any therapy, that they were in conditions not to be alleviated by any mortal measure. Patient 11 had undergone operation several times by some of Philadelphia's most distinguished surgeons for a persistent sinus in the malar region of the face. Whether cure in this case can be assigned to bacterin therapy, avoidance of interference or the application of Bier's vacuum cup, remains undetermined. The last, acting to promote the circulation of blood and lymph, is not to be underestimated in the treatment of these cases. Case 8 seemed to be of sufficient importance to warrant the preparation of Chart 4, for two reasons: first, to show again the value of control by the clinical symptomatology; second, to illustrate even in the presence of definite and persistent osteomyelitis, how success may be expected in assisting Nature by stimulating the defense of the organism.

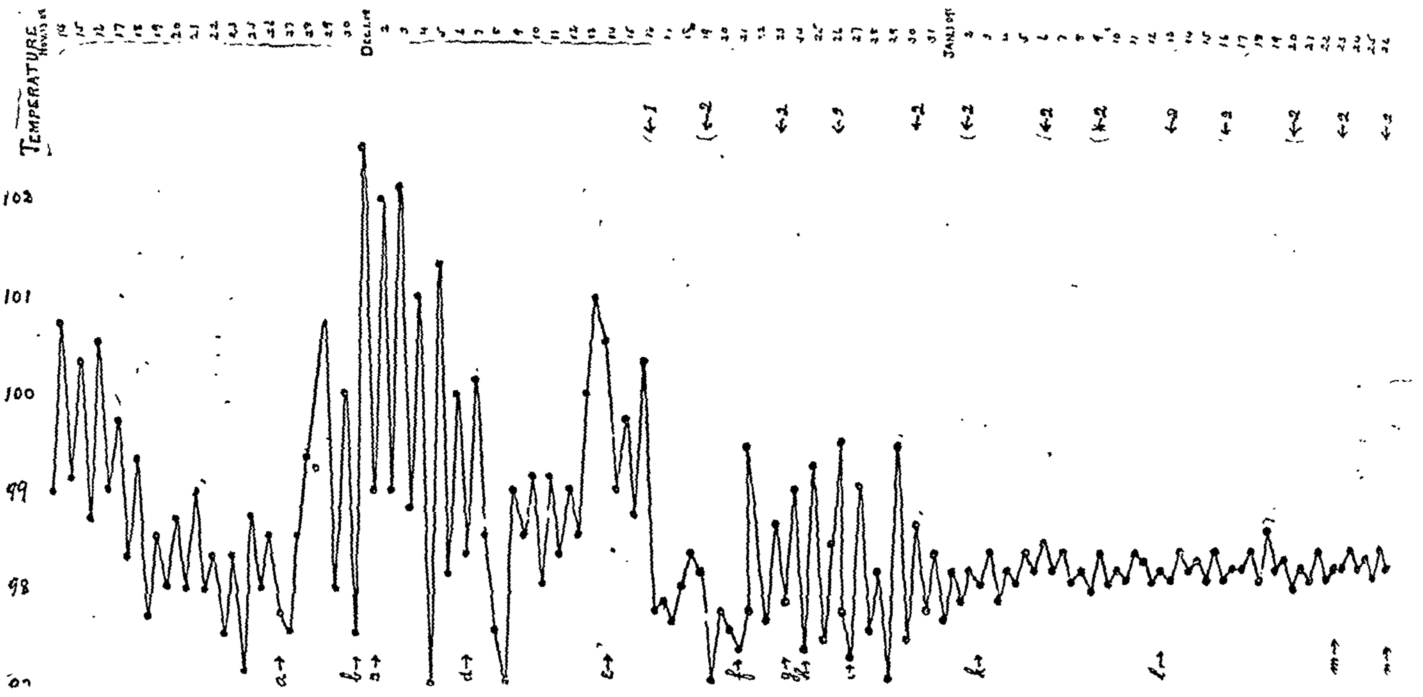

Chart 3.—Temperature. Patient, W. F. Subdiaphragmatic abscess drained per laparotomy; a, patient very comfortable; drainage satisfactory; b, patient complains of pain in hepatic region; c, leucocytes 20,000; d, excessive suppuration; e, suppuration variable, but very profuse; f, patient's appearance improved; feels much stronger; g, patient discharged from ward; h, treated in out-patient department; i, suppuration markedly decreased; k, discharge from wound very slight; l, marked gain in strength and health; m, no discharge; n, sinus healed; 1, pus demonstrates *M. aureus* and albus; 2, inoculations *M. aureus* bacterin ½ c.c. This case illustrates how admirably active immunization can be conducted by resort to the clinical symptomatology as a guide, to the exclusion of the opsonic index.

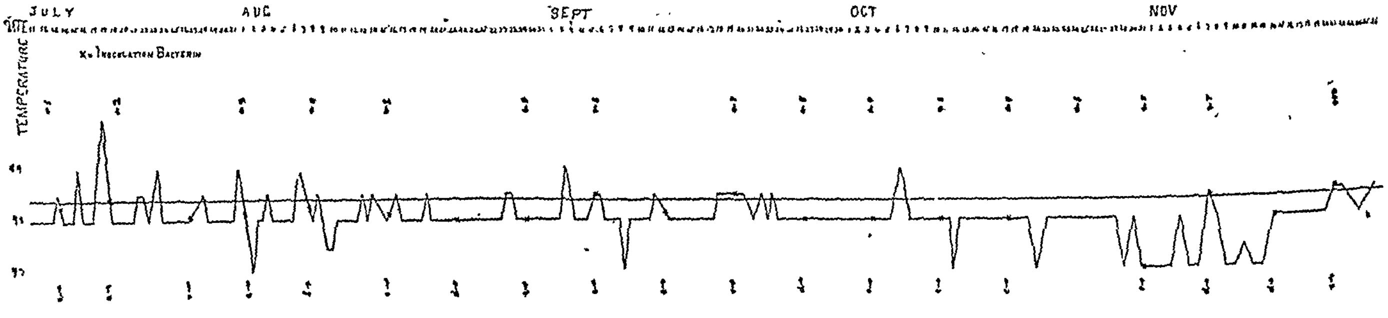

Chart 4.—Temperature. Patient, B. S.: osteomyelitis with suppurative sinus of jaw. Crosses on line indicate *M. aureus* bacterin inoculations; a, ½ c.c. bacterin; b, ⅔ c.c. bacterin; c, 1 c.c. bacterin; d, 1 c.c. bacterin; suppuration less; e, 1⅓ c.c. bacterin; drain removed; f, sinus healed; 1, weight 120; 2, weight 121; 3, weight 117; 4, weight 118; 5, weight 124; 6, weight 125; 7, weight 126; 8, weight 123; 9, weight 122; 10, weight 127. Note the progressive increase in weight as the temperature, at first above normal and hectic, became subnormal, then rose and fluctuated on the normal line.

Even in ambulatory cases it is my custom to see that the patient is provided with and instructed in the use of a clinical thermometer, so that he may take and record his temperature at least twice daily. This may appear an unnecessary matter, and in itself is probably worthless, but it cannot be too strongly emphasized that if we are to be governed by the clinical symptoms, and are desirous of obtaining the greatest success, we must not ignore the slightest aid, for it is only by judgment based on the total symptomatology, important signs as well as trivial details, embracing a consideration of the temperature, pulse, malaise, indisposition, headache, nausea, vomiting and local phenomena, as reactions in appearance and increase of discharge temporarily following inoculations, that success or failure depends.

FISTULAS AND EMPYEMAS

Whatever may have been the results of others in fistulas, especially in fistula in ano, my success in this class of affections has been practically *nil*, or only that ascribed to time and Nature, as will be observed in the three cases it has been my opportunity to treat.

It seems questionable whether or not bacterial inoculations are to enter deeply into the treatment of thoracic empyemas. One of my cases, from which the *Bacillus pyocyaneus* was isolated, was uninfluenced and proceeded to death. The other, which has been under treatment for a year, shows slight but unmistakable improvement.

POSTOPERATIVE WOUND INFECTIONS

Nine cases of this character have been treated by bacterin therapy, and, although the results have been satisfactory so far as cessation of suppuration and wound repair are concerned, it is impossible to place the credit entirely to the inoculation of dead bacteria. Those cases treated with stock bacterins have responded equally with those in which the autogenous preparation was used.

OTITIS MEDIA

In our series there occurs but one case of suppurative middle-ear disease from which repeatedly the *Bacterium ferrugineum* was isolated in pure culture. The patient has been a sufferer for nine years. He has received six inoculations during the past five weeks, and, aside from slight increase in the amount of discharge, there has been no noteworthy effect. Naturally the case has been under observation too brief a period, and conclusions should not be drawn from a single case.

OSTEOMYELITIS AND OSTEOPERIOSTITIS

I am fortunate in having both a typical acute and a chronic case of osteomyelitis for comparative study. The patient with the chronic condition has been a sufferer for months, the infection arising from a compound fracture of the leg. The inoculations have been few, but the result brilliant. The acute case, No. 28 of the series, arose from a hematogenous infection. Following operation, the temperature, after a temporary fall, began to fluctuate and a bacterial inoculation was immediately made. Not the slightest effect could be observed, and a blood culture demonstrated the presence of the *Micrococcus aureus*. Subsequently two more inoculations were made, but the result has not only been not beneficial, but possibly actually deleterious. I believe that we have here a beautiful illustration for the contraindication of active immunization in acute bacteriemia. So instructive is this case that I have deemed it advantageous to show the temperature curve (Chart 5).

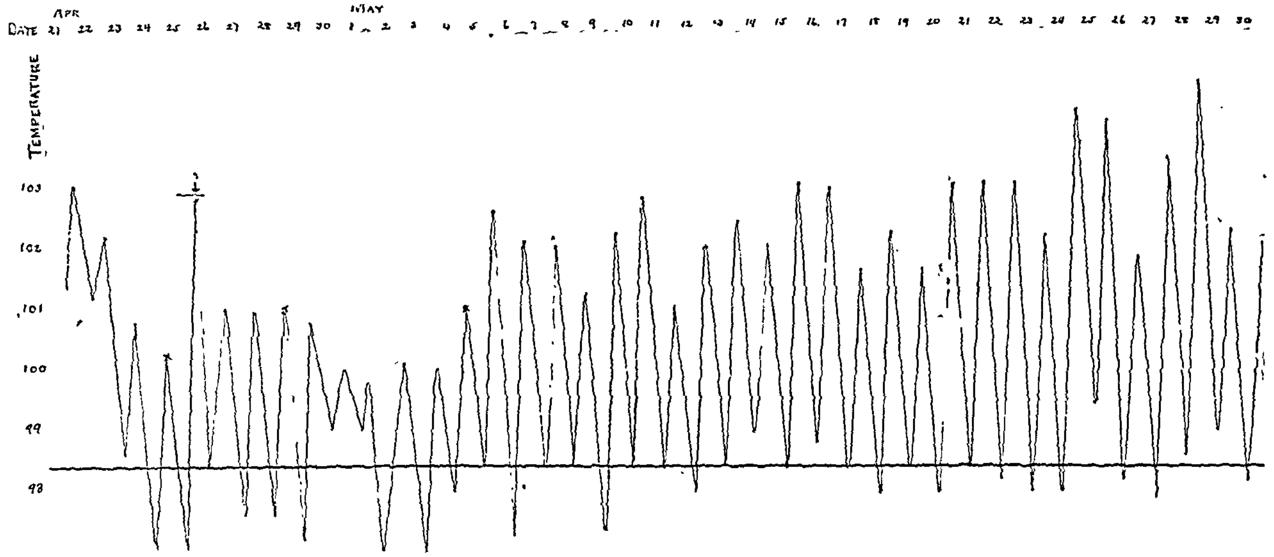

Chart 5.—Temperature. Patient, S. S.: acute osteomyelitis of tibia, followed by septicemia. The arrow indicates a point at which blood culture showed *M. aureus*; the crosses indicate *M. aureus* bacterin inoculations. Note that the patient, as indicated by the fluctuating temperature, progressively grew more septic, and that bacterin therapy was not only useless, but possibly harmful.

The only case of osteoperiostitis is one of subacute or chronic gonorrheal infection. The patient for a year was a sufferer from exostoses of the os calcis, demonstrated by the *x*-ray, causing him extreme pain on walking and incapacitating him from work. It is hoped that by Neisser bacterin the further formation of osteophytes may be stayed and the patient immunized against the gonococcus so that an operation may be undertaken with the prognosis of a reasonable degree of success. After six inoculations the pain on walking has decreased markedly.

PROSTATITIS AND URETHRITIS

One patient with chronic gonorrheal prostatitis has been not only greatly improved, but practically cured. In justice to other therapeutic measures, be it said that urinary antiseptics, prostatic massage and the passing of cold urethral sounds were not omitted from the treatment.

I have had no experience with gonococco-bacterin therapy in the treatment of acute specific urethritis. Nevertheless, in a case of the chronic posterior type complicated by stricture, a cure has been apparently effected, all shreds having disappeared from the urine, employing the usual tests. Here, again, dilatation by sounds was associated with the biologic therapy.

CELLULITIS

In the majority of cases of this affection, no improvement could be definitely ascribed to bacterial immunization, although the patients recovered. In one instance, however, Case 34, the effect was so immediate on a rapidly spreading phagedena of the abdominal wall due to the *Bacterium punctatum* that there can be no question as to the efficiency of bacterin.

CYSTITIS

The report of one case[3] can never solve any problem, and in this case a complete cure has not yet been secured, although, if the infection is primary and limited to the bladder, a favorable field seems to be afforded. An encouraging report has been received from Dr. Ohlmacher, of Detroit, who has continued the treatment in this case by the inoculation of autogenous *Bacillus coli communis* bacterin.

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[3] Since the preparation of this paper, bacterin therapy has been applied to another case of cystitis due to the *B. coli communis*. Although slight improvement was perceptible during an abbreviated course of treatment, circumstances rendered its continuation impossible.

VULVOVAGINITIS

Through the courtesy of Dr. Howard C. Carpenter, I am privileged to report the results of gonococco-bacterin immunization on thirteen children treated at the Philadelphia Hospital. His report is as follows:

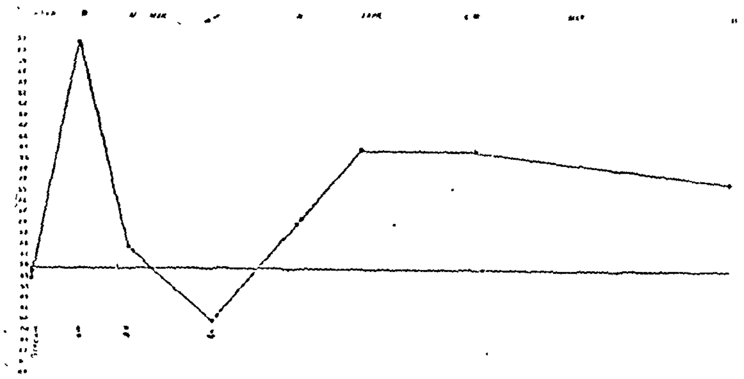

Chart 6.—Opsonic index. Patient, J. B. C.; recurrent erysipelas. The circles indicate opsonic readings; the crosses bacterin inoculations; a, inoculation 25,000,000 streptococci; b, 50,000,000 streptococci. Observe in this case that the "high tide of immunity" indicated by the opsonic index has been maintained in the "positive phase" *for two and a half months, no inoculation having been* given since March 22. It will be noted that this is entirely in accord with the clinical symptoms of the case.

1. The *Microccus gonorrhœæ* was demonstrated by smears in each case prior to treatment.
2. Three to ten inoculations of a stock preparation were employed.
3. The earliest disappearance of the gonococcus was noted after the second inoculation.
4. Five million dead gonococci was the constant dose.
5. The period of treatment varied from nine to thirty days.
6. In one case in which no local treatment was employed, the result was most brilliant.
7. In every case the period of detention in the hospital was noticeably shortened.

TENOSYNOVITIS AND ARTHRITIS

The rôle played by bacterin therapy is largely conjectural in the treatment of tenosynovitis. The patients, acute and subacute suppurative types, finally recovered after periods of prolonged treatment, but such patients also recover without bacterial inoculations. The number of cases is too limited for conclusions.

My experience with infectious arthritis seemingly justifies the conclusion that the most favorable results can be expected in the subacute and chronic affections, especially those caused by the *Micrococcus gonorrhœæ* in which infection either marked improvement or cure has always occurred. Indeed, in these cases the response to treatment frequently has been extremely prompt and the ultimate functional result better than by any other known method. Fifty million gonococci of a stock preparation constituted the average dose. From two to four inoculations were made over periods of three to four weeks. The results in other infections have been essentially negative.

ERYSIPELAS

Two cases of erysipelas have been successfully treated by biologic therapy in my series. One patient had an acute streptococcal infection of the face and neck. Recovery was prompt following one inoculation of 100,000,000 bacteria of the autogenous strain. Precisely the influence of the antigen cannot be determined even in this instance, as this infection is prone to run a short course.

The other case, No. 30, is one of peculiar interest and of sufficient importance for detailed description. I have merely reported the curve of the opsonic indices (Chart 6). This woman for thirteen years has been periodically, notably in the spring, the victim of recurrent attacks of erysipelas, involving both legs, thighs and genitalia. This infection, when her health is run down, is always superadded to a marked chronic hyperplasia of the loose connective tissues of both lower extremities. Beginning late in the winter, active immunization, employing a stock bacterin of the *Streptococcus pyogenes*, was instituted. Five inoculations were administered over a period of six weeks. The patient reports that she feels very well and that this is the first spring for a number of years that she has not been the victim of the attack of erysipelas. In this case, the opsonic index was utilized to advantage, as will be seen by consulting the chart. It would seem indisputable that bacterin therapy has a place in this type of case.

ACNE VULGARIS, FURUNCULOSIS AND CARBUNCULOSIS

Acne affords a fruitful harvest for active immunization. Every case has either been greatly improved or cured, and to the credit of bacterin therapy be it said that three of the cases were the most aggravated and obstinate types of pustular acne that it has been my fortune to observe. The duration of the disease previous to bacterial inoculations varied from two to fifteen years. Autogenous bacterins were always employed from the *Micrococcus aureus* or *albus*, isolated with equal frequency.

Of all the indications for bacterin therapy, furunculosis is probably the most brilliant. In no case have I failed to obtain a cure in more than five weeks; ten days being the shortest period of treatment. My rule has been invariably to culture the pus from the boil and prepare an autogenous bacterin. The *Micrococcus aureus* has always been the infecting organism.

No less satisfactory have been the results of therapy of carbunculosis by bacterial inoculations. Again, the *Micrococcus aureus* was isolated in seven cases. A cure always resulted, the longest period required by treatment being three weeks; the shortest, five days. In one instance a polyvalent bacterin, prepared from eight different strains of the *Micrococcus aureus*, was used with a result equally successful with any in which the autogenous preparation was employed. The clinical symptomatology has been practically the sole guide in the administration of the inoculations. The curve of the opsonic indices depicted in Chart 7 demonstrates graphically the

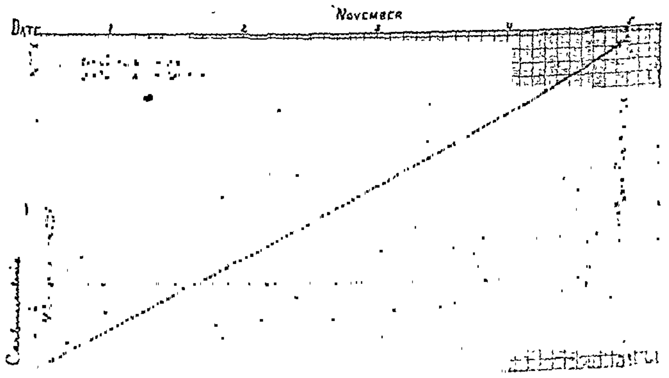

Chart 7.—Opsonic index. Patient, C. S., Jr.; carbunculosis. Circles indicate opsonic readings; crosses indicate *M. aureus* bacterin inoculations, to the left, ½ c.c., to the right 1 c.c. Note the definite rise of the opsonic index from the negative to the positive phase during the treatment of five days' duration.

rapid rise of the index often observed in the treatment of a case, No. 73, of short duration.

TUBERCULOSIS

The treatment of tuberculosis, in its manifold phases, constitutes my proudest effort. Broadly, therapy in these cases has been directed to the (1) pure and (2) mixed infections. We have heard much of tuberculin therapy, which, of course, is simply bacterin immunization by the tubercle bacillus or opsonotherapy, if you please, when the bacillus emulsion, "B. E.," product is employed.

The cases in my series should also be divided into the chronic and acute classes. With the acute class the results have been anything but encouraging. Here, again, my belief has been sustained that we must not expect success. It is probably true that in incipient tuberculosis we have to deal with a bacteriemia, and it has been my fortune, in the artificial inoculation treatment of such cases, invariably to experience failure. The results of bacterin therapy in my work with the early cases of tuberculosis certainly supports the findings and opinion of Rosenberger. In the subacute and chronic stages of the disease, even in the pulmonary type, I have reason to believe in the statement of Trudeau and others. A review of the cases tabulated under "Tuberculosis" in the table of cases is almost self-explanatory and confirms this belief. Many of these cases, for divers reasons, have not passed to immunizing doses of tuberculin or to the stage of cure. A great number have manifested definite improvement. I desire to call attention to one case in particular, No. 93 in the series. An exploratory laparotomy revealed general tuberculosis of both the visceral and parietal peritoneum. The patient was a very sick young woman and her life was practically despaired of. Tuberculin therapy by "B. E." variety was instituted in August, 1908. After a very tedious regime of treatment continuously since that time, she is at present positively unaffected in any way by inoculations, weekly, of 6 to 10 mg. of tuberculin, and has gained ten to fifteen pounds in weight. Her health seems perfect. I am not unaware of the fact that occasionally such patients recover after a simple laparotomy.

The particular phase of tuberculous disease to which I especially desire to direct attention is the mixed infection so constantly superimposed on and associated with Pott's disease and hip disease—indeed, any bone or joint tuberculosis. It is well known how frequently these complex mixed infections fail to improve and ultimately cause the death of the child. I do not desire to be overoptimistic, but I am very sanguine over my successes with bacterin therapy in this class of cases, and do not hesitate to say that in no instance in which proper surgical treatment and antituberculous measures were associated with bacterial inoculations have I failed to observe improvement in the health of the child. I have made it a practice to culture and reculture the pus from time to time for the preparation of autogenous bacterins. Commonly as many as three different bacterins have been alternated in the immunization process. So soon as the temperature fails to 100, or lower preferably, and remains permanently below that grade, tuberculin inoculations are begun. I have been inclined to believe, judging from the cases under my observation, that better results have attended the process of active immunization when, just as in tuberculin therapy, pure and simple, the treatment has been started with relatively small bacterin inoculations, progressively in-

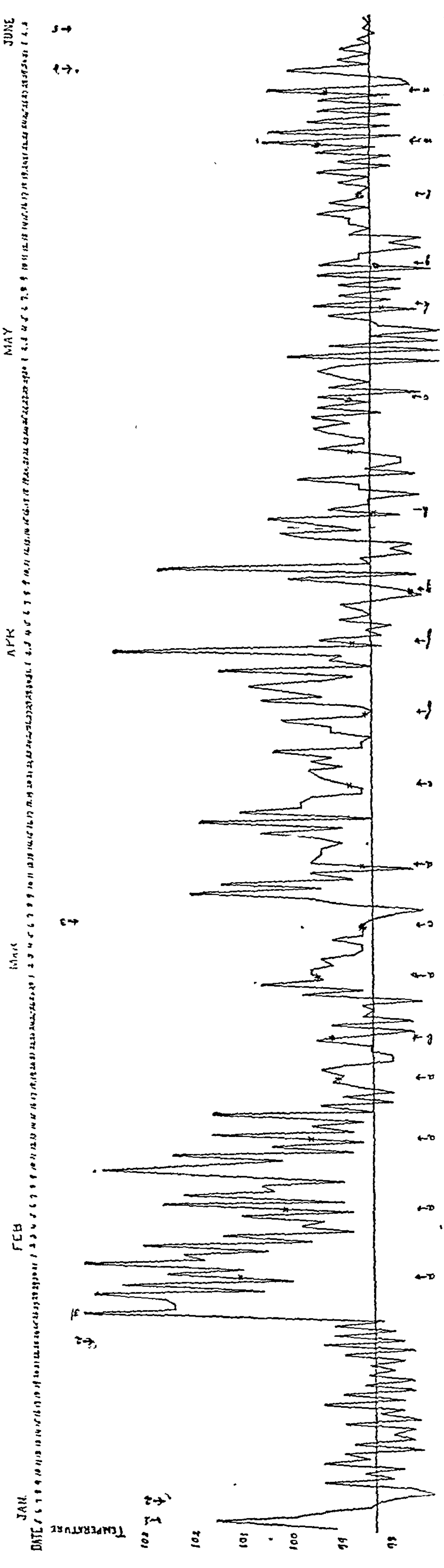

Chart 8.—Temperature. Patient, E. J.; caries, tuberculous spine with psoas abscess and mixed infection. Stars indicate inoculations of tuberculin "B. E." and crosses, inoculations with *M. aureus* bacterin; a, bacterin inoculation m. iv; b, tuberculin inoculation 0.00005 mg.; c, tuberculin inoculation 0.0001 mg.; d, bacterin inoculation m. vi (new); e, bacterin inoculation, m. vi; f, bacterin inoculation, m. vii; g, tuberculin inoculation 0.00015 mg.; h, bacterin inoculation m. viii; i, bacterin inoculation m. ix; k, bacterin inoculation m. x (new); l, tuberculin inoculation 0.0002; m, tuberculin inoculation 0.00025; n, tuberculin inoculation 0.0003; 1, operation; 2, pus sterile; 3, pus demonstrates *M. aureus*; 4, suppuration very slight; child has gained greatly in weight; 5, cast applied and child sent to Atlantic City for the summer. This case illustrates ideally the gradually progressive, but definite tendency to a subsidence of the infectious process, represented by the restoration of the temperature curve to the normal line. Note the manner in which the bacterin and tuberculin inoculations have been carefully alternated. Observe, that depending on febrile rises at times the tuberculin inoculation was suspended, to be resumed at the next stated time, employing *only half of the previous dose*, which possibly was instrumental in causing the temperature rise. Note that the inoculations both by tuberculin and bacterin began as comparatively small doses, frequently repeated and increased slowly and cautiously throughout the course of treatment.

creased to the therapeutic limit, rather than by recourse to large dosage, thereby, in the former case, establishing immunity, and, in the latter, avoiding anaphylaxis. Apropos of the beneficial effect to be derived from treatment by this method, permit me to submit Chart 8, illustrative of Case 103 in my series.

So far as I am aware, I am alone in advocating the value and importance of alternating bacterial inoculations and tuberculin therapy in this type of tuberculous mixed infection. The inoculations should be given every four to seven days, the clinical symptoms permitting. The opsonic index is unreliable as a guide. Relative to tuberculin inoculations, I have used Bacillen Emulsion alone or Bouillon Filtrate alone, or a combination of the two, as practiced and advocated by Trudeau. The last, theoretically, seems to have the preference, but my results have been equally satisfactory with each. It all depends on the man behind the syringe.

It must be remembered that in the use of tuberculin we have a more potent instrument for evil than for good, unless it is properly administered. In careful hands, it serves as an invaluable aid in treatment and is Nature's own remedy to stimulate the bodily defenses. When tuberculin is so employed, the patients do better with than without tuberculin; their retention in the hospital is materially shortened and the complications, if they occur, are fewer and less severe.

CONCLUSIONS

From the study of the cases in this tabulated series the following conclusions seem justifiable:

1. The diseases contraindicated for bacterin therapy are the diffuse infections characterized by septicemia, pyemia and grave sapremia.

2. Those in which therapy by this agent is beneficial or curative are the superficial acute, subacute and chronic processes, especially the last two.

3. The acute cases, in which brilliant results can be uniformly expected, are those of acne vulgaris, furunculosis, carbunculosis and subcutaneous abscesses.

4. Subacute and chronic gonorrheal and tuberculous affections are amenable to bacterial immunization, and because of the impossibility and impracticability often of employing an autogenous bacterin the reliable stock preparations should be used.

5. Certain acute gonorrheal infections can be benefited.

6. It is questionable whether tuberculin therapy should ever be employed in very acute tuberculosis. Opinion is divided as to whether or not acute miliary tuberculosis and death supervened as a result of tuberculin therapy in one of our cases, No. 81 of the series.

7. The mixed infections in chronic tuberculous disease afford an important prospective field for *alternating bacterial inoculations and tuberculin therapy.*

8. Autogenous bacterins are always to be preferred over the stock preparations, and success or failure frequently depends on this fact.

9. Although the duration of the period of greatest potency of bacterins is undetermined, the best results have been obtained when the pus has been recultured and a fresh bacterin prepared every two to four weeks.

10. It is believed that the best effects, therapeutically, particularly in chronic cases, occur when the quantity of bacterin is slowly and cautiously increased during successive inoculations, thereby, as has been thoroughly demonstrated in tuberculin therapy, avoiding hypersusceptibility or anaphylaxis.

11. Therapy by both bacterins and tuberculins can be satisfactorily executed by keen observance of the clinical symptomatology. Reliance on the opsonic index as a guide is not only unnecessary, but often actually conducive to erroneous conclusions, owing to its variability.

12. Bacterin therapy, by virtue of its potency to do more harm than good, when unskilfully managed, will or should probably not become a universal therapeutic measure in the hands of the general practitioner, unfamiliar with bacteriology or work in the laboratory. Ignorance and wantonness are incompatible with ambition and energy, and an otherwise meritorious therapeutic agent thus abused will ultimately fall into disrepute.

13. Therapy by the employment of bacterins made from *Bacillus pyocyaneus* has been entirely useless.

14. Bacterins and tuberculins are not "cure-alls," but when intelligently used serve as invaluable aids to Nature in fortifying the bodily defenses, thereby accelerating convalescence, diminishing complications and promoting cure.

116 South Nineteenth Street.

PASTEURIZATION OF MILK*

ROWLAND G. FREEMAN, M.D.

NEW YORK

Public opinion in this country swings violently in one direction or another, occasionally on insufficient premises; and this, I think, applies to the present attitude among many pediatrists in this country concerning the pasteurization of milk.

We can all agree that what we want is a safe, raw milk, since we all wish, in the artificial feeding of infants, to approximate as nearly as is feasible the condition of the food as obtained by the infant at the breast.

The only questions for discussion, then, are: Can we obtain a safe, raw milk for the feeding of infants? And, if not, is milk injured by heating, and to what extent, and by what temperature?

There can be no question but that we can to-day feed all the infants of New York on a much safer raw milk than was possible five or ten years ago; but what is the extent of this element of safety? Take, for example, the best milks at present produced under the certified milk plan. How safe are these milks as a raw food for infants?

The danger of tuberculosis in such milk may be said to be fairly eliminated by well-aired, well-ventilated cow stables, and by the repeated tuberculin test. But tuberculosis is one of the lesser dangers in milk. The diseases concerning the spread of which we have most tangible and incontrovertible proof are typhoid fever, diphtheria, scarlet fever, and epidemic sore throat.

Our sanitary dairies do almost all that is possible to protect us from these diseases, but those of us familiar with this subject know that epidemics may occur from the sale of certified milks. No system of control can protect a milk-supply from a mild walking typhoid, or a typhoid-carrier among the employees, unless regular bacteriologic examinations are made of the urine and feces of the employees at frequent intervals; and I take it that no such system would at present be advocated.

Diphtheria has apparently been spread by the best of our milk-supplies; what protection have we against this in any raw milk?

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* Read before the New York County Medical Society, Oct. 25, 1909.

Virulent diphtheria bacilli exist in the throats of many healthy persons, and, although our best dairies have some medical supervision, no supervision could be practically enforced that would protect the milk from a beginning diphtheria or a healthy diphtheria-bacillus carrier.

The same arguments will apply to other diseases carried by milk, so that, although in our best supplies the bacteria are only one-thousandth part as numerous as in the ordinary supplies, they are still present in sufficient numbers in most certified milk to cause our suspicion until we know their identity. Now if this is true of certified milk, how much more so is it true of our ordinary milk supplies! I think we may well say that at the present time there can be no absolute security in any raw milk. This being the case, why should we not use a heated milk in which there is security?

The opinion has become current in this country that heated milk produces poorly nourished children; that it causes rickets and scurvy; that it kills the life of the milk, and that it produces chemical changes in the milk which renders it less nourishing. It may be stated that these are opinions that prevail in this country and not abroad, and I am not willing to admit that in matters dependent on clinical and hospital observations we are superior to our confrères in Europe.

This opinion began to develop in our country at the time when milk was sterilized at a boiling temperature, sometimes for two days, adopting laboratory methods. The idea was given concrete form chiefly by an article published in the *American Journal of Medical Sciences*, in 1891, by Davis, of Philadelphia, and Leeds, the chemist, of Jersey City. This article, while giving no detailed clinical data, expressed the opinion that children fed on sterilized milk, although kept free from diarrhea, did not flourish, and the chemical basis for this opinion was expressed by Leeds, who advocated sterilization at 68 C. (155 F.) for six minutes instead of the boiling temperature which had previously been used.

From this time, however, it became evident that a boiling temperature was not necessary and that lower temperatures were sufficient to destroy the bacillus tuberculosis and the other organisms feared in milk, so that we gradually began to use lower temperatures and instead of a boiling temperature of 212 F., 175 F. for twenty minutes was used and later 155 F. for thirty minutes, while now we know that 140 F. for forty minutes will afford security. Nevertheless raw milk has become much more generally used, notwithstanding its dangers.

The opinion of Davis that boiled milk causes malnutrition in children is well answered by the fact that European physicians have been using it for the past twenty or more years without having made a similar observation.

Now as to the causation of scurvy: After scurvy had first been diagnosticated in this country by Dr. Northrup and the clinical picture clearly painted, many cases began to be reported, and, as this was at a time when milk was being sterilized, a good many of the patients were fed on heated milk. But I believe that, although scurvy developed after the milk was heated, the heated milk was not the cause of the scurvy.

Out of the 356 cases of scurvy collected and studied by the American Pediatric Society in 1897, 60 per cent. were fed on proprietary foods, 19 per cent. on sterilized cow's milk, 10 per cent. on condensed milk, 3.3 per cent. on breast-milk, and only 4.5 per cent. on pasteurized milk.

From these figures, therefore, we get very little to indicate any responsibility on the part of heated milk in connection with scurvy, while, on the other hand, we have the experience of physicians abroad who feed their babies on boiled milk and who have seen much less scurvy than has been seen in this country. Our scurvy developed to a great extent at the time when milk was being fed in extreme dilutions and after illness when the food was still further reduced.

Comby of Paris, who has had a very large experience, remarked several years ago that he had seen but five cases of scurvy, and in those cases the babies were all fed on diluted milk.

The original milk depots of Paris, founded in 1892, still dispense to babies milk heated to 115 C. (239 F.), which is absolutely yellow from the conversion of sugar into caramel, and I was told at this depot last year that in the long history of these milk depots, extending over sixteen years, but one case of scurvy had been observed.

It seems to me evident, therefore, that our assumed relationship between the heating of milk and scurvy is unfounded.

Another disease said to be caused by the heating of milk is rachitis, a disease which, to my mind, however, has little connection with feeding, the main etiologic factor being insufficient fresh air, for it is a disease of cold climates only, develops only in winter, and is most marked in those races which have been accustomed to outdoor life all the year round. It occurs with all sorts of food.

Now as to the manner of heating milk: Commercial pasteurization, which consists in heating milk to a high temperature for a few seconds, should be condemned. It is used for the purpose of keeping dirty milk sweet until it can reach the consumer. It should be insisted that milk be produced in a cleanly manner, so that it will keep sweet until it reaches the consumer. Some city milk is so dirty that it is heated at the dairy and again after it reaches the city, so as to prevent its becoming sour before it is delivered. Such milk should be poured into the gutter and not allowed to be sold as pasteurized milk.

The only safety for the consumer is to get his milk sweet and raw. Having obtained it, he should then render it safe by the use of the smallest amount of heat compatible with safety. A temperature of 140 F., but little higher than the temperature in which one can bear one's hand, if continued for forty minutes, with the milk in a closed nursing-bottle, is sufficient to kill all the bacteria that we know and fear in milk, at the same time changing neither the taste nor, so far as we know, the chemical composition or the ferments of the milk. Such pasteurization, to my mind, should be still used by every physician who is conscientious in his endeavor to secure the safety of the infant he is feeding.

CONCLUSIONS

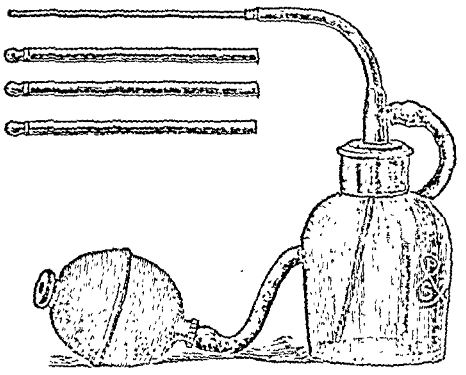
1. There is no absolute safety in any raw milk.
2. Commercial pasteurization of milk, employed to keep it sweet until it can be marketed, should be condemned.
3. Milk is in no way injured, either in taste or by chemical change or action on ferments, by pasteurization at 140 F. for forty minutes.
4. Pasteurized milk does not cause malnutrition or scurvy or rachitis.

211 West Fifty-seventh Street.

AN EASILY STERILIZABLE ATOMIZER

FRANCIS ASHLEY FAUGHT, M.D.
PHILADELPHIA

The accompanying illustration represents an improved atomizer. Recognizing that the ordinary atomizer in the hands of the average busy practitioner is far from ideal in respect to surgical cleanliness, I have had the old Philadelphia atomizer modified so that the distal portion of the nozzle (three and one-half inches) is detachable from the rest of the apparatus by means of a screw thread. This permits ready sterilization by boiling that part of the atomizer usually contaminated. To facilitate matters further, these atomizers are furnished with duplicate tips, which allow the atomizer to be repeatedly used without the delay incident to sterilization of the tip.



Atomizer with duplicate removable nozzle-tips, which may be readily sterilized by boiling.

While this style of atomizer may not be applicable in all cases in which atomizers are employed, it is the type most universally used, so that the adoption of this suggestion should materially minimize the transference of infection from one patient to another.

The firm of George P. Pilling and Son Company have kindly followed my suggestion in the manufacture of this atomizer, which may be obtained from any instrument-dealer.

1831 Chestnut Street.

TREATMENT OF TYPHOID BY CONTINUOUS SALINE INSTILLATION *

DAVID RIESMAN, M.D.
PHILADELPHIA

I wish to preface what I have to say about the Murphy treatment in typhoid fever by a few remarks on the pathogenesis of the disease. We are accustomed to attribute the symptoms of typhoid fever to the typhoid bacillus and to such lesions, produced by ulceration of the blood-vessels, by perforation, etc., as are the indirect result of its action. The general symptomatology of the disease—the fever, the cerebral symptoms, the altered metabolism, and the acute degenerations in the parenchyma of organs—are ascribed to a typhoid toxemia brought about by the entrance into the blood of the poison of the typhoid bacillus. Unlike the toxin of tetanus, this poison is not a secretory product of the microorganism, but is an endotoxin laked out of the bodies of dead bacteria. As this view of the pathogenesis of the typhoid toxemia is the one almost universally accepted, it may be bold to question its correctness. But it seems to me that it is not a full and adequate explanation of the principal phenomena of the disease. There is another source of toxemia which the prevailing theory leaves out of account. I mentioned it in a paper published in 1899[1] and in a discussion of Dr. Mallory's address on typhoid fever before the Pathological Society of Philadelphia a few years ago.

Stated briefly, the theory or hypothesis is as follows: There occurs in typhoid fever in response to the cytogenic stimulus of the typhoid bacillus a tremendous proliferation of cells in all the lymphoid tissues of the body. Numerically this proliferation is as much beyond computation or conception as the pullulation of the bacteria themselves. All cell multiplication is attended by the elaboration of metabolic substances which enter the lymph-stream and by way of it the general circulation. When the cells die, which in typhoid fever happens soon after their birth, their disintegration products—the analogues of the endotoxins of bacteria—are also poured into the blood. Is it not conceivable that these two groups of substances—one produced during cell formation, the other during cell destruction—are factors in the toxemia and play a part in the causation of the general symptoms of the disease? Granting even that the products of metabolism of the newly formed lymphoid cells and their disintegration products are normal to the body, the quantitative increase occurring in a comparatively short time must tend to swamp the system. But it is more than probable that the metabolic products in the circumstances are abnormal.

That in the formation of the cells and of the bacteria enough proteid or other material is taken from the blood to make a difference is unlikely, although the point is worth considering.

Whatever the source of the poisons, it is eminently desirable to have a method that will eliminate them. Clinicians have endeavored to promote elimination by giving large amounts of water by the mouth and salt solution in considerable quantities by the rectum.

The good results obtained by surgeons in the treatment of peritonitis and other abdominal inflammations and in grave postoperative conditions by the Murphy method of continuous enteroclysis led me to use this method in the treatment of typhoid fever. It seemed rational to suppose that the constant instillation of salt solution into the bowel would better accomplish the result aimed at by the administration of water, namely, the filling of the blood-vessels and the increased excretion of poisons. I am aware of the fact that hitherto no positive proof has been brought that soluble poisons, at least none of an albuminous nature, are eliminated in the urine in typhoid fever; there is, however, nearly always a pronounced bacilluria.

By the Murphy method it is possible to introduce into the system extraordinary quantities of fluid. Murphy mentions the case of a child of 11 who absorbed, without losing one drop, 30 pints of salt solution a day. Such quantities I have not succeeded in introducing, nor have I attempted it, but it is easy to secure the absorption of from one-half to one gallon per day.

The method, termed proctoclysis by its inventor, is described as follows:

> The patient is placed in the Fowler position. The apparatus in its simplest form consists of a fountain syringe or can with a large rubber tube attached, terminating in a

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* Read before the College of Physicians of Philadelphia, May 5, 1909.

[1] Riesman, David: Internal Secretions; Metabolic Toxemia, Philadelphia Med. Jour., Feb. 4, 1899.

vaginal hard rubber or glass tip flexed at an obtuse angle two inches from its tip, having numerous openings in its bulbed end. The tip should be inserted into the rectum so that the angle fits closely to the sphincter, and the tube may then be bound firmly to the thigh with adhesive strips so that it may not be expelled. The bag or can is suspended from the foot of the bed so that its base is about six inches above the level of the patient's buttocks. Once the irrigating apparatus is thus placed, it need not be disturbed for several days unless to increase or diminish the speed of influx. The solution, consisting of a dram each of sodium chlorid and calcium chlorid to the pint of water, is now placed in the reservoir and kept at a temperature of 100 F. by applied heat in the form of hot-water bags, thermolytes or an incasing can of hot water. The quantity administered depends on the severity of the case, the age of the patient and other considerations that will suggest themselves in the particular instance.

The best plan is to place a pint and a half of the saline solution in the container every two hours. The container should be elevated sufficiently to allow this all to flow into the rectum in forty to sixty minutes, giving the rectum approximately an hour's rest before the influx of fresh fluid.

I began the treatment by this method, somewhat modified, in the spring of 1908. At first I put the patients in the Fowler position, but found they did not bear this well. They were then left in bed in the recumbent posture. The solution used was the ordinary physiologic salt solution and did not contain calcium chlorid. No difficulty was experienced in keeping the tube in place without any special device. The solution flowed in so gently that hardly any was expelled. Occasionally a patient would object to the irrigation, but the majority bore it without a murmur. I have generally discontinued the instillation during the night and have persisted in it during the day, with brief interruptions in some instances. It would seem that the injection might be given with advantage throughout the febrile stage of the disease; yet it is conceivable that if absorption should not occur promptly the accumulation of water might distend the bowel, a thing not to be desired in the later stages of the disease. Careful observation in many cases will determine whether it is wise to continue the instillation through the third week.

On account of the rarity of typhoid fever in Philadelphia at this time as a result of the extension of the filtered water system, the opportunity of testing this or any other treatment is inadequate for the drawing of definite conclusions. Large as is the service at the Philadelphia Hospital, I have had since October, 1908, scarcely more than one or two cases of typhoid fever at any one time, and the total number is very small; the same condition prevails in the other hospitals.

During the past summer[2] we had a series of ten cases at the Jewish Hospital, several of them of great severity, in all of which the method of continuous saline instillation was used; all the patients recovered. The conclusions, however, can only be tentative, and all that can be said at present of the treatment is that it does two things: first, it increases the flow of urine; second, it lessens the nervous symptoms. It is difficult to see whether or not it shortens the course of the disease. It has seemed to me, however—and this opinion is shared by my hospital internes—that on account of it we have had recoveries in several desperate cases.

I have presented the subject in this brief way in the hope that those who have an opportunity may give the method a trial.

1715 Spruce Street.

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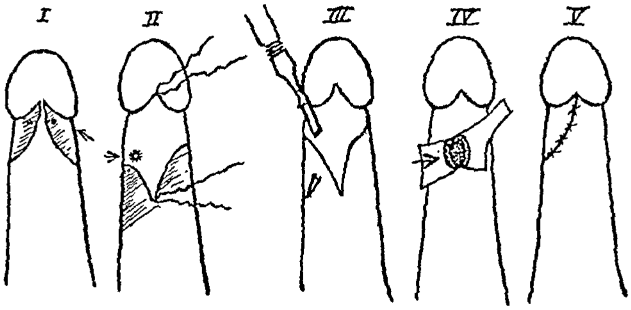
[2] That is, since the reading of the paper.

CASE OF PERIURETHRAL ABSCESS *

CHARLES S. STERN, M.D.
Urologist to Hartford Hospital
HARTFORD, CONN.

The condition here reported, which I have called periurethral abscess for want of a better name, might perhaps be better termed "subfrenal abscess," as I shall shortly demonstrate. I report it as interesting because of its infrequency and on account of its etiologic significance as the cause of recurrent gonorrhea.

History.—The patient, a married man of 38, had contracted his first gonorrhea nineteen years ago. Was rapidly cured of it, and had no subsequent discomfort. After undue erethismic disturbance, some years later, he had another specific infection of the urethra, also rapidly cured, but at this time was apprised of a fistula at the side of the frenum. This sometimes discharged thin, grayish matter; at other times, nothing; it *only occasionally* gave symptoms of inflammatory irritation. The patient twice subsequently, after undue intercourse, acquired acute anterior gonorrhea, and, as stated, seemed certain of acquiring a fresh attack after every possible exposure. During his last attack last summer I treated him for the first time. At that time I probed into small opening of the fistula and found that it communicated with a minute opening at the other side of the frenum, as well as penetrating a pocket, which showed a depth of about 3.5 cm., and I therefore advised opening this up. The acute gonorrhea was rapidly cured, and following this the opening at the side of the frenum, which had been discharging simultaneously, also stopped running, under treatment. I did not see the patient again for six weeks; he then returned with a fresh discharge. I then took separate specimens from the urethra and fistula. Each specimen showed gonococci, but these were especially abundant in the specimen from the fistula.



Surgical treatment of a periurethral abscess. I, preputial openings at each side of frenum; II, frenum bisected; opening of abscess discovered; III, bistoury penetrating lower angle of abscess; IV, abscess cavity laid open; V, plastic work completed.

Operation.—A few treatments cured the infection, and then with the positive assurance that his reinfections had all been caused from the fistula, this was operated on, and the following interesting conditions found. The frenum was bisected on a probe passed through the two openings. On being laid back, an opening 1 cm. in diameter was seen to the right of the median line. (Fig. 2.) A director was inserted into this to a distance of 3 cm., and an incision exposed the (Fig. 4) cavity of an old sinus (1 by 2 cm.). The incision was extended to the bottom of this and careful exploration made with a fine probe to discover an opening which might lead into the canal of the urethra, but none found. The walls of the abscess cavity were lined with granular, soggy, old inflammatory tissue, which was curetted. The infiltrated tissue forming the walls was excised so far as possible, and the edges of the wound were coapted and sutured. It healed promptly, leaving a slight open pocket.

I have not previously seen or read of the counterpart of this condition, though clinically it may be compared to the less infrequent periurethral fistulas as the cause of repeated reinfections of the anterior urethra.

75 Pratt Street.

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* Read before the Hartford Medical Society, Surgical Section, Oct. 25, 1909.

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

OLIVER T. OSBORNE, M.D.
Professor of Materia Medica and Therapeutics, Yale Medical School
NEW HAVEN, CONN.

(Continued from page 291)

DRUGS USED FOR SYSTEMIC ACTION

The best drugs to stimulate the activity of the skin after absorption are arsenic and thyroid.

The best action of arsenic is obtained from liquor potassii arsenitis (Fowler's solution), and the liquid preparation is the only one that should be used when arsenic is pushed to its full physiologic limit. The best solid form of arsenic is arsenii trioxidum (arsenious acid). The primary symptoms of the overaction of arsenic are pain and distress in the upper abdomen, nausea, vomiting, flushing of the face, reddened eyelids, and swelling under the eyes in the morning. This swelling under the eyes in the morning probably represents but one thing, viz., irritation of the kidneys. If when arsenic is pushed for any reason, whether for chorea, psoriasis, leucemia, or pernicious anemia, the urine were more frequently examined, albuminuria would be often found. Serious consequences in the kidneys, destruction of red blood corpuscles, and neuritis can be caused by thoughtless overuse of arsenic. It is a dangerous poison, except in small doses, not more than 0.002 gram (1/30 of a grain) of the trioxid of arsenic three times a day, and even at this dose it can cause distinct undesired symptoms.

The iodid of arsenic probably is just as well not made official, as if it is desired to give iodin at the same time that arsenic is administered, it could be given conjointly, and the activity of both drugs better watched. The liquor arseni et hydrargyri iodidi (Donovan's solution) could be omitted for the same reasons. Two active drugs should be separately watched for their physiologic activity. There is no unique or specific value to these combinations which cannot be acquired by the administration of the same drugs separately. There is no need for the liquor acidi arsenosi. There is no need for the liquor sodii arsenatis.

When thyroid is administered for any purpose it should be remembered that its action is insidious, that it is potent, and that it can do serious harm, which may be permanent. Thyroid can produce serious loss of weight, can stimulate the thyroid gland to excessive activity, which may result in Graves' thyroid disease (exophthalmic goiter), may cause circulatory depression, faintness, and collapse turns. Its sale by druggists without a physician's prescription should be prohibited. The dose required for its continuous physiologic activity is small, from 0.05 to 0.20 gram (1 to 3 grains) of the official dried gland, two or three times a day, is often sufficient, and generally too much when its prolonged action is needed. Many times it will seem as though the preparation were inert. This is because it needs a little iodin to add to its activity. If even 0.05 gram (1 grain) of sodium or potassium iodid is administered conjointly with the thyroid treatment, it will be sufficient to saturate the thyroid extract and the thyroid secretion with the iodin which is necessary for their activity.

The only drug that is positively sure to decrease perspiration is atropin. Such treatment, of course, is only symptomatic, but it may be advisable to tide over a temporary prostrating and debilitating period of sweating. Toning up the general condition of the patient and proper hydrotherapeutic measures are the best means of combating profuse perspiration.

It is doubtful if sulphuric acid, administered internally or added to baths, is of any special value. There is no belladonna, stramonium, or hyoscyamus preparation that will act better in inhibiting perspiration than straight sulphate of atropin.

Besides local applications of heat of various kinds, the best diaphoretics are alcohol, antipyrin, and pilocarpin.

The action of alcohol is too well understood to require any description whatever.

The activities of antipyrin in this line can be used only occasionally in the beginning of acute fever. The antipyretic effect is positive and the perspiration that it causes may be profuse, and, if it persists, may need to be inhibited by atropin, lest too much prostration be caused.

To produce perspiration when dropsies or extravasated fluids are to be eliminated or when the kidneys are not properly secreting, pilocarpin has long been used. It has been found more and more dangerous on account of the profuse secretion which it causes into the bronchial tubes. In serious conditions for which pilocarpin has been used, such as in uremia, various hot air, and best "baking" or other dry heat, treatments, which are followed by profuse sweating, are much safer than is a sweating dose of pilocarpin.

If we need the sweating activity of pilocarpin, the hydrochlorid is the best preparation to use, and this should be administered hypodermatically. The pilocarpin nitrate seems superfluous. If one desires the increased secretion in the bronchial tubes from this drug, small doses of it can be administered for this purpose. If one believes that it is a stimulant to the growth of the hair, very small doses of it can be administered for this purpose. As pilocarpin represents the activity of pilocarpus, the fluidextract seems not needed.

DRUGS THAT ACT ON THE GENITOURINARY SYSTEM

It is well to subdivide the old classification of diuretics into subheadings of the objects for which the drugs are used.

(A) TO INCREASE THE AMOUNT OF URINE

The drugs most efficient in producing this result are caffein, digitalis, buchu, scoparius, and squill. These drugs can rarely cause any irritation of the kidney (except possibly slight irritation by squill) and hence will not increase inflammation in an inflamed kidney. However, it is a mistake, when there is suppression of urine in nephritis, to give such diuretics as will cause more congestion of the already inflamed kidneys. Even water should be diminished in amount.

Caffein and digitalis, of course, have their best use in passive congestion of the kidneys and when there are exudations anywhere and the circulation is at fault. It is probable that the repeated administration of strong, fresh decoctions of coffee, taken a cupful at a time, is as valuable a diuretic as is the drug caffein, the extra amount of water thus taken being probably an advantage. When administering caffein it is often forgotten that if given after supper or at bedtime it may cause insomnia, whether in the form of coffee or the drug.

That digitalis is more efficient as a diuretic, in the form of the infusion, than in any other form, is a matter of general belief, but this is scientifically doubtful.

The clinicians who very infrequently use buchu, scoparius and squill seem to aid their patients who have disturbed secretion of urine as well as those who use these drugs frequently.

Buchu is often thought most active when fresh infusions of the leaves are made. The diuretic effect is perhaps here largely due to the increased amount of water ingested. It is probable that the fluidextract of buchu would act as well.

Scoparius (broom) is used much less as a diuretic than it was some years ago. Its active principle, spartein, has been advised as a cardiac drug when there is irregular action. In any loss of compensation it is useless, but it may sometimes quiet an irritable, irregular heart when there is arteriosclerosis and a diminished secretion of urine.

Squill has slight tonic effect on the heart, is slightly irritant to the kidneys, and has been used largely in combination with digitalis in cardiac dropsies. It is quite probable that most of the good effect is due to the action of the digitalis. Squill has also been used as an expectorant in certain kinds of cough, but it is a nasty, disagreeable drug to take, and the syrup of squill and the compound syrup of squill could well be omitted from the Pharmacopeia. If it is desired to use tartar emetic, it can be given more pleasantly than in the syrup of squill combined with the fluidextract of seneca, i. e., hive syrup. The fluidextract of squill, the tincture of squill, and the vinegar of squill are official. Certainly if squill is needed, all of these preparations are not needed.

Uva ursi and its fluidextract, zea (corn silk), and chimaphila and its fluidextract may all be well omitted from the Pharmacopeia, and fabiana (pichi), not now official in the Pharmacopeia, should also not be added to the next Pharmacopeia. There is nothing that these last-named drugs can do physiologically that cannot be better done by the oil of santal, copaiba, and cubebs.

(B) DRUGS TO MODIFY THE CHARACTER OF THE URINE

The drugs in this class are the potash salts, hexamethylenamina (urotropin), phenyl salicylate (salol), and methylene blue.

The advantages of the alkaline potassium salts, acetate, bicarbonate, and citrate are too well understood and utilized to require discussion. The absolute necessity, at times, of rendering the urine alkaline is met by these drugs efficiently. Their prolonged administration is generally inadvisable, as it is not usually well to keep the urine alkaline for any length of time on account of the decomposition that such an abnormal reaction of the urine may cause or allow. During their excretion they stimulate the kidney somewhat and cause an increased amount of water to be passed. While the acetate is the most active, and the bicarbonate the worst tasted, the citrate seems to be sufficiently active and the most pleasant tasted. Combinations of these drugs probably act no better than a larger dose of one of them.

The value of hexamethylenamina can hardly be overstated. As a genitourinary antiseptic and as a gallbladder antiseptic it is without parallel.

Any salicylic acid carrying preparation is not only somewhat of a bowel antiseptic, but considerable of a genitourinary antiseptic, and one of the best preparations for this purpose is phenyl salicylate. Salol should not be given if there is any congestion or irritation of the kidneys, as in the intestine it breaks up into phenol and salicylic acid, and phenol is irritant to the kidneys, if in any amount, or if they are previously inflamed. Salol is an excellent bowel antiseptic for the upper part of the intestine, and therefore is an excellent antiseptic in acute disturbances of the bowels, and is valuable, in small doses, from 0.20 to 0.25 gram (3 or 4 grains), given once in six hours, in typhoid fever. It not only more or less prevents the typhoid bacilli and colon bacilli and perhaps other pathologic germs from entering the upper part of the intestine, but as a urinary antiseptic during typhoid fever it is of value. In inflammation of the pelvis of the kidneys and inflammation of the bladder and of the urethra, both hexamethylenamina and phenyl salicylate are valuable drugs.

The value of methylene blue as a genitourinary antiseptic is not so positive, and the staining of all tissues blue is of doubtful advisability. It can be given for a short time without any harmful effect, but it is used much less than it was a few years ago.

(C) STIMULANTS TO THE MUCOUS MEMBRANE OF THE GENITOURINARY TRACT

These are oil of santal, cubebs, copaiba, and cantharides. The latter is rarely used for this purpose, as it is so unpleasantly active that only small, inactive doses are given. The tincture is the only preparation used internally.

The oil of santal is the best stimulant for the urinary tract, and is much less likely to disturb the digestion than is copaiba or cubebs. As the oil of santal seems to be the best stimulant in subacute or chronic inflammation of the urinary tract, copaiba and cubebs seem almost not needed, as the best drug is none too good. As the balsam of copaiba seems to be the best preparation of copaiba, the massa copaiba could be omitted from the next Pharmacopeia. As the oleoresin of cubebs is the best preparation of cubebs, its fluidextract could be omitted from the Pharmacopeia.

The simple diuretic triticum and its fluidextract would not be missed from the Pharmacopeia. The administration of plenty of water, the patient put on a milk diet and at rest, and frequent hot baths will do more toward curing cystitis and other acute inflammatory conditions of the genitourinary tract than any of these simple so-called diuretics. The simple bitter taraxacum, with its fluidextract and extract, could also well be omitted from the next Pharmacopeia. Sabal (saw palmetto) and its fluidextract should also be omitted.

(D) DRUGS TO INCREASE THE MENSTRUAL FLOW

For this purpose there is nothing that can surpass iron, manganese dioxid and thyroid. Sabina and its fluidextract, and hedeoma (pennyroyal), and oil of pennyroyal should be omitted. As a uterine sedative the viburnum prunifolium can do all that viburnum opulus can do; therefore the viburnum opulus, with its fluidextract, should be omitted from the Pharmacopeia.

(E) DRUGS TO CONTRACT THE UTERUS

The best drugs for this purpose are ergot and quinin. As previously stated, while hydrastinin hydrochlorid seems to cause contraction of the uterus, hydrastis in any other form is of but little, if any, value.

(To be continued)

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, JANUARY 29, 1910

THE VISCOSITY OF THE BLOOD

The study of the viscosity of the blood, though recent, has reached such proportions as to merit more than passing attention, not only from those interested in scientific progress, but from the clinician as well. The enumeration of the corpuscles and the estimation of hemoglobin have yielded invaluable data; the study of the reaction of the blood, its coagulation time, its specific gravity, its chemical constitution, etc., have not been without value. The practical worth of this more recent investigation remains to be determined, though some observers, notably Bachmann and Determann, are already trying to attach this new coach to the train of medical art.

Early investigators in the study of viscosity were hampered by intricate or by imperfect apparatus, and as a consequence their results were few and of doubtful value. With the advent of more efficient instruments, however, the subject gives greater promise. To Burton-Opitz, Hess, Determann, Hirsch and Beck, and to McCaskey we owe the present ready means for investigation. In principle, the devices are the same. In the Hess instrument, for example, small volumes of blood and of distilled water are drawn under the same suction through calibrated capillary tubes of equal bore, and the height to which each rises is taken as the measure of its relative viscosity. That of the blood is then expressed in terms of distilled water as a unit.

The normal viscosity varies between 3.5 and 5.5. As factors concerned in the production of viscosity the following have been noted: hemoglobin content, number of red corpuscles, the colloid and, to a lesser degree, the salt constituents of the plasma, venosity and hydremia, various observers differing as to the relative importance of each. Age, sex, time of day, posture, exercise, altitude, baths, and various other factors as well as disease, cause variations.

Bachmann, in an elaborate study, emphasizes the existence of a direct relationship between hemoglobin and viscosity which he terms the hemoglobin-viscosity quotient; this, constant in health, may be markedly altered in disease. He points out that this quotient is lowered in pneumonia and epidemic meningitis, but raised in typhoid fever, and sees here a means of differential diagnosis. Leucocytosis and variations in blood pressure are without influence on it.

Jorns, in a more recent article, after giving a description of the method used by him in his investigations, asserts:

1. Viscosity varies directly with the hemoglobin content of the blood; in illustration of which he cites lowered values in hemoglobinemias, with a return towards normal as the anemia disappears.

2. It is raised by increased venosity, as seen in conditions leading to cyanosis and dyspnea, *e. g.*, mitral stenosis, pneumonia, emphysema.

3. High values are frequently to be noted in arteriosclerosis, and these may be lowered by prolonged iodid therapy, therein confirming the observation of Müller and Inada, that the beneficial effect of the iodids is due to a viscosity-reducing action. He neglects to state, however, that to this finding Determann takes exception.

4. The highest values are present in diabetic coma, the lowest in hydremia, such as occurs in nephritis with anasarca.

Jorns, after setting forth his data, wisely refrains from sweeping inductions allowing his readers to interpret them, and to accept them for what they are worth.

The study of the viscosity of the blood is recent, the method of determination easy, and intelligent observations along the lines indicated in the papers here cited, may possibly serve to make this new method a valuable addition to our resources.

THE CONTAGION AND TREATMENT OF LEPROSY

Much has been said recently in the newspapers regarding the case of the alleged leper, John R. Early, who was sequestered for some months at Washington and later appeared before a medical society in New York, where he was pronounced by a well-known physician to be not a victim of the disease. The question seems to be still unsettled, as a recent report states that Early has been declared leprous by a special committee of the New York Society of Medical Jurisprudence. The Washington health authorities still hold to their former view, while, according to some accounts, the government has accepted the opinion of the New York specialist and stopped the man's pension.

There is hardly any disease the suspicion of which can so induce popular panic as leprosy. The accepted opinion of its incurability, the historical and traditional reputation of the disorder and its repulsiveness have been sufficient to account for this fear, and to a certain extent to justify it. The recent resolutions of the British and British colonial delegates to the conference on leprosy, held in Bergen, Norway, in August last,[1] support in a measure the popular views of its contagiousness, though they do not justify some of the measures which have been taken against it in certain quarters. They point out that an interval of years may elapse between an infection and the first appearance of the disease, a fact which is itself rather suggestive of terrifying possibilities to timid persons. It must be admitted also that, according to the report of Brinckerhoff, the disease may even be on the increase in Hawaii. Against this, however, we have the fact that the leprosy germ does not seem to be particularly viable outside of the human body, and cases of known contagion in other than tropical and subtropical countries are at most very rare. The scattered Scandinavian lepers in Wisconsin and Minnesota do not appear to be foci of contagion, and there is no extensive evidence of its spread in Nova Scotia and Norway, where it has long existed. Though it was common in Europe after the Crusades, it almost entirely died out without any scientific treatment whatever. While it cannot be said that there is any racial immunity, the Orientals, including the Malay and Mongol races, appear to be most liable to the infection. It is probable also that the nervous form of leprosy will be found, as certain South African specialists have declared, much less contagious than the tubercular form. Occasional imported lepers are found in our northern cities mingling with the general population without restraint, but investigations by the Public Health and Marine-Hospital Service have not disclosed any authentic cases of contagion.

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[1] Nature, November 18; and abstracted in Society Proceedings in The Journal, October 2, 1909, p. 1124.

We have lately had reason to question the absolute incurability of leprosy, and can see some grounds for the belief that its malignancy is largely dependent on environmental and hygienic conditions. Apparent cures have been reported by competent dermatologists even in the semitropical State of Louisiana. The important question yet to be determined, and the one demanding most thorough study, is the manner in which the disease is transmitted, and much is to be expected in this direction from the experimental station in Molokai. The settlement of this question will afford a definite basis for effective prophylaxis and much of the fear of the disease at present held will be allayed. While leprosy is a disorder that is eminently one for compulsory notification, and humane isolation is not yet to be abandoned, these do not require the sacrifice of the dictates of common humanity.

THE NAMING OF DISEASES

The many objections to eponyms in scientific literature gain force in the case of new names for old diseases. An illustration of this is the naming of the so-called Krompecher tumors. Krompecher[1] wrote an original article on basal-cell carcinoma which is a valuable study of the subject. The basal-cell tumors, however, are among the oldest of the recognized lesions of the skin. Histologically, they are the so-called tubular epitheliomas, growing in strings between the connective-tissue bundles of the corium. Clinically, they have been known from time immemorial as "rodent ulcers," "Jacob's ulcers," "ulcus exedens," etc. All of these names, including "Krompecher tumor," are confusing and should be dropped for "basal-cell epithelioma," except that it seems almost a desecration to ancient medicine to change a name so old and hoary as "rodent ulcer." To substitute the name "Krompecher tumor" is like changing the name of the River Jordan to "Van Dyke's River," for instance, because Van Dyke has lately written entertainingly on it.

Of course, the eponym is often a necessary evil. When such a name must be used, care should be taken to use the correct one; that is, the name which bestows credit on the original investigator. Too often this point is overlooked, and credit withheld and bestowed without regard to the merits of the case.

At a recent medical meeting, for instance, one of the topics was "sporotrichosis beurmanii." In 1898, sporotrichosis was first described by Schenck[2] in Baltimore, who recognized the disease-producing organism as a sporothrix and established its pathogenicity. Two years later Hektoen and Perkins[3] in Chicago described the second case, confirmed the findings of Schenck, and with fairness and propriety gave the name of *Sporothrix schenckii* to the pathogenic micro-organism. The claims of these three authors to priority are beyond question; their work was complete, scientific, and published in accessible literature. Now, three years after Hektoen and Perkins, and five years after Schenck described the disease and its organism, De Beurmann[4] and his associates find the same organism in the same disease in France and appropriate the discovery for their own. There are no grounds for making any distinction between the organism described by De Beurmann and his colleagues and that described by Schenck, Hektoen and Perkins, and yet the disease is being described the world over, even in America, as "sporotrichosis beurmanii." There is a well known half-jest that an American painter can sell his paintings to better advantage in America when he is living in Paris. Sometimes one feels that the same sort of advantage belongs to scientific work done in Europe.

The case of sporotrichosis schenckii is merely a flagrant and recent illustration of the careless and unjust practice of ignoring the work of a discoverer or prior investigator for that of a later student; but unfortunately many similar instances could be given. The naming of angioneurotic edema is one. That, as we all know, is constantly called "Quincke's edema." Quincke[5] wrote of it in 1882, but Bannister[6] had described it and recognized its character two years before. If this edema is to bear any man's name, it should bear Bannister's.

In a recent paper[7] on the treatment of nevi and other cutaneous lesions, the author states, after large experience with various methods, that no other method for the treatment of nevi compares with the use of solidified carbon dioxid, which he looks on as "the most important addition to the list of physical agents employed in therapeutics since that of radium." He gives credit for the method which he esteems so highly to Geyser, not to Pusey, who introduced it.

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[1] Krompecher: Beitr. z. path. Anat. u. z. allg. Path., 1900, xxviii, 1.

[2] Schenck: Johns Hopkins Bull., 1898, p. 286.

[3] Hektoen and Perkins: Jour. Exper. Med., 1900, v, 77.

[4] De Beurmann: Ann. de dermat. et de syph., 1903, p. 678.

[5] Quincke: Monatsh. f. Dermat., 1882.

[6] Bannister: Chicago Med. Rev., June 20, 1880.

[7] Lancet, London, Dec. 4, 1909.

Of course questions of priority and credit are of minor importance; but, for the sake of their own scientific standing, investigators should be scrupulously careful to give due credit to their predecessors and should avoid the inaccuracy and injustice of giving to one man the credit for another's work.

THE ANNUAL AUTOMOBILE NUMBER

In planning the fourth Automobile Number of The Journal for our issue of April 9, we recognize that the attitude of the physician toward the motor car is no longer one of hesitation and doubt, but that the automobile has been classed as a part of the physician's equipment, to be procured if his business will warrant it. A careful physician buys an automobile either because, after careful contemplation, he figures that the automobile as a business investment will bring him in sufficient revenue to justify its purchase, or else because he knows that he can afford it as a luxury and feels that he is entitled to introduce a little more pleasure into his busy life.

Automobiles have settled down to a fairly definite standardization. Perhaps one of our correspondents does not put it too strongly who says: "There was no car made in 1909 so poor as the best ones of 1906." A corollary of this remark would be the statement that the automobile of to-day cannot be judged by the performances of a model several years old. This remark is not intended to disparage the remarkable performances of some old machines which run year after year with satisfaction to their owners.

We look forward to the fourth Automobile Number with confidence in the cooperation of our readers, as in previous years. Those who are willing to contribute are requested to notify us at once, preferably designating some particular phase of the subject which they will take up. Manuscripts, which may contain from 200 to 800 words, should reach us during February, but the notification should be sent us immediately in order that space may be reserved.

As to photographs, we desire that they should be of as interesting a character as possible. They should be clear and distinct in order to reproduce well, and it will add to their interest if, like many of the pictures previously printed, they contain something besides the automobile itself. We shall be particularly glad of articles and photographs illustrating various improvements devised by physicians, arrangements for housing the automobile, caring for it, or repairing it—devices which may be taken advantage of by other practitioners. We shall also welcome criticisms and suggestions that may aid us in our endeavor to make this fourth Automobile Number the best ever issued and one to be read by the general practitioner with pleasure and profit.

IMPROVED OUTLOOK FOR CANAL SANITATION

During the past three months two important matters connected with the administration of the Sanitary Department of the Canal Zone have been discussed editorially in The Journal. The first was a bill introduced into Congress by Hon. James R. Mann, of Illinois, modifying the present method of government of the Canal Zone; the other was the suspension of the publication of the monthly bulletin issued by the sanitary department. We are glad to say that both of these matters have been satisfactorily adjusted. The Journal discussed editorially, December 11, the work of the sanitary department and the value, to public health officers and sanitarians, of the bulletin issued by Colonel Gorgas. Some criticisms were also made regarding the action of the chief engineer in ordering the discontinuance of the bulletin. It is a great pleasure to announce that the publication and distribution of this bulletin have been resumed by order of Secretary of War Dickinson. This action on the part of Mr. Dickinson is most commendable and insures to the scientific world and to laborers in all branches of sanitary work the continued receipt of this bulletin containing the latest details regarding sanitary methods and results in the Canal Zone. On November 27 attention was directed editorially to a bill introduced by Mr. Mann (H. R. 12316; S. 601) providing for the government of the Canal Zone by a board of one director, one chief engineer and one governor. This bill was criticised because, either intentionally or otherwise, it subordinated the sanitary department to the engineering and construction department. Mr. Mann, on having his attention called to this point, replied: "It is not possible to have good government on the zone with a lot of different heads." Admitting this proposition, The Journal pointed out editorially that Mr. Mann's bill, instead of providing for a single head, provided for three and that the responsibility of administration could be lodged in a single director without subordinating the sanitary department to any other department. It is with great satisfaction that we learn of the amendment of Mr. Mann's bill by substituting a single director for the triple board, thus placing all the departments on the same level and equally subordinate to a single administrative head. The bill as it now stands appears to be satisfactory so far as this point is concerned, and its passage will not cripple the sanitary department. The Journal congratulates Mr. Mann on the marked improvement made in his bill.

QUACKERY AND FELONY

In the prosecution of advertising quacks one of the difficulties in the way of securing a conviction is the tendency of a lay jury to look at the action brought as a species of persecution skilfully engineered by the ethical members of the medical profession. This tendency is, of course, encouraged by the quack and used for all it is worth and he assumes the pose of a martyr to professional jealousy. Human nature is so constituted that, while it looks on the commission of a misdemeanor with leniency, it views a felony with unequivocal disfavor. The case recorded in the Pharmacology department of this issue is a case in point. The individual prosecuted was charged, not with practicing medicine without a license, but with obtaining money under false pretenses. Here there was no opportunity to assume the rôle of injured innocence. The "gold-brick" swindler caught red-handed could as consistently cry "persecution" as could a physician who had taken money for making a fake diagnosis and pretending to "cure" the condition thus "diagnosed." The eminently sensible ruling of the court, in the case here referred to, that physicians should be permitted to testify as to certain conditions as matters of fact rather than merely as matters of opinion, will, if sustained by the higher courts, do much to render the quack's cry of persecution flat, stale and unprofitable. The important point in connection with this case, however, is that under such charges the prisoner becomes but a common felon and on a par with the ordinary porch-climber or sneak-thief. While the layman may experience some difficulty in recognizing the danger of quackery *per se*, he finds no such obstacle in a case of plain robbery. The average man is perfectly willing to play fast and loose with his health, but he objects to any such harsh treatment of his purse. Let the public once realize that quackery and robbery are usually synonymous, and the outcome of legal action instituted against quacks may be safely predicted.

Medical News

ARIZONA

Burned Hospital Rebuilt.—Whitwell Hospital and Sanitarium, Tucson, which was destroyed by fire December 29, last, has been rebuilt and reopened. The new structure is fireproof and is provided with outside villas for the use of patients suffering from asthmatic and pulmonary affections. The hospital was originally built in 1907 by Mrs. W. S. Whitwell, New York City, in memory of Mr. William Scollay Whitwell. The hospital maintains one free bed. Dr. Hobart P. Shattuck is resident physician.

CALIFORNIA

Bequest to College.—Cooper Medical College, San Francisco, has received a bequest of $5,000 by the will of the late Mrs. Myrick.

Beriberi at Alviso.—Five cases of beriberi are reported by the State Board of Health at Alviso among Chinese and Japanese laborers.

Sale of Red Cross Stamps.—At the final meeting of the Red Cross Christmas Stamp Committee, held in San Francisco January 12, the treasurer's report showed a sale to date of 700,000 stamps with many sales not yet reported.

Cornerstone Laid.—The cornerstone of the Kaspare Cohn Hospital, Los Angeles, was laid recently, with appropriate ceremonies. The hospital is to cost $50,000, of which more than $30,000 has already been collected or subscribed.

New Sanitarium.—Hot Springs Sanitarium is to be established at Calistoga, to cost $100,000, with the following directors: Drs. Stanley Stilman and Rufus L. Rigdon, San Francisco, William G. Downing, Suisun, Frank G. Newton, St. Helena, and Mr. J. T. York, Napa.

Physicians' Club Organized.—The Physicians' Club of Redlands was organized December 16, and the following officers were elected: President, Dr. Charles E. Ide; vice-president, Dr. John L. Avery; secretary-treasurer, Dr. H. Hamilton Forline, and directors, Drs. Walter B. Power and Thomas M. Blythe.

Personal.—Dr. Jacques Loeb of the University of California has been appointed head of the department of experimental biology in the Rockefeller Institute for Medical Research, New York City.——Dr. Chauncey H. Wilder, East Oakland, has been appointed district surgeon of the Southern Pacific Railroad.——Dr. Arthur H. Reinstein, assistant surgeon at the Veterans' Home, Yountville, has been appointed a member of the staff of the Southern Pacific Railroad Hospital, San Francisco. At a farewell reception held in Dr. Reinstein's honor, the veterans presented him with a gold watch and fob, a leather hand-painted sofa pillow and $100 in cash.——Dr. Ernest Dozier, San Francisco, has been appointed bacteriologist and pathologist to the Napa State Hospital.

CONNECTICUT

Loving Cup to Dr. Fuller.—At the annual meeting of Hartford County Medical Society, January 3, the loving cup of the society which is held by its oldest member, and which was so held by the late Dr. Gordon W. Russell for twenty-two years, was presented to Dr. Horace S. Fuller.

Health Officials to Meet.—The fifth conference of health officials of the state will be held in Lampson Hall, Yale University, New Haven, February 8 and 9. At the evening session February 8, Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, will be the principal speaker, and the morning session, February 9, will be devoted to the discussion of the milk supply of the state.

Personal.—Dr. George E. Ober has been elected president of the Bridgeport Board of Health.——Dr. Arthur D. Variell has been elected president of the Waterbury Board of Health.——Dr. David J. Molumphy, Hartford, has been appointed medical inspector by the board of health.——Dr. Alfred S. Wadler, New Haven, has returned from Europe.——Dr. Everett J. McKnight, Hartford, and William H. Carmalt, New Haven, have been appointed by the board of directors of the state prison, to act at the prison under the requirements of the sterilization law recently passed by the general assembly.——Dr. Seth Hill, Stepney, has retired from practice.

DELAWARE

Personal. — Dr. Edward S. Dwight, Smyrna, has been appointed antituberculosis commissioner, vice Henry Ridgely, Dover, resigned.——Dr. Samuel G. Elbert, Wilmington, was seriously injured recently in a collision between his carriage and a street car.

State Board [illegible] esley S. Downs, Dover, and Henry W. [illegible] ve been appointed members of the Sta[illegible] Board, and Drs. Edwin S. Anderson, Dover, and Abram E. Frantz, Wilmington, members of the homeopathic board.

Hospital Notes.—The new Physicians and Surgeons Hospital, Wilmington, was opened for inspection December 20. The governor of the state delivered the opening address.——A public dispensary open to the indigent poor, suffering from tuberculosis, has been opened in Georgetown, under the auspices of the local antituberculosis society.

GEORGIA

Personal.—Dr. William L. Gilbert has been elected president, and Dr. Willard E. Quillian vice-president, of the Atlanta board of health.——Dr. William R. Googe has been elected mayor of Abbeville. His opponent was Dr. T. R. Moye.——The offices of Drs. Thomas M. Hall and J. H. Shirley, Milledgeville, were damaged by fire, December 28, to the extent of about $3,000.——Dr. Charles T. Nolan, Marietta, has been appointed a member of the State Board of Medical Examiners, vice Dr. Edwin R. Anthony, Griffin, term expired.

The Tuberculosis Fight.—At the first meeting of the newly appointed board of trustees of the Georgia State Sanatorium, Dr. William C. Jarnagin, Atlanta, was elected member of the executive committee, finance and auditing committee, and the committee on farms and outside business; Dr. Thomas R. Wright, Augusta, chairman of the committee on sanitary, medical and dispensary service, and Dr. Nicholas Peterson, Tifton, a member of that committee and of the committee on farm and outside business.——At the first annual meeting of the Georgia Antituberculosis Sanitary Society, held in Atlanta January 17, Dr. Robert P. Izlar, Waycross, was elected third vice-president; Dr. William C. Pumpelly, Macon, secretary-treasurer, and Drs. Craig Barrow, Savannah, Rufus R. Kime, Atlanta, and Thomas J. McArthur, Cordele, members of the executive committee.

ILLINOIS

Cook County Budget.—The Cook County budget for the fiscal year 1910 shows an increase of $307,829.41 as compared with the appropriation of the previous year. The new Oak Forest infirmary is to receive $111,309.42, the Dunning Institutions, $389,622.76, and Cook County Hospital $473,500.70.

Consumptive Hospital Overcrowded.—The new tuberculosis hospital on the grounds of Cook County Hospital is overcrowded with patients. Several have had to be turned away and sent to the municipal lodging hospital and thence to the Dunning Hospital, and 20 tuberculosis patients have been placed in another department of the hospital because of the overcrowded condition.

Personal.—Dr. Rachael Watkins has been temporarily appointed assistant physician at the Peoria State Hospital.——Dr. Warren E. Taylor, superintendent of the Watertown State Hospital, is said to have resigned and Dr. William A. Crooks to have been named acting superintendent.——Dr. and Mrs. Harry C. Hill and family, Streator, have started for Europe.——Dr. George H. Brannon, Manhattan, has recovered from his recent operation at St. Joseph's Hospital, Joliet, and returned home.——Dr. Vaclav H. Podstata, superintendent of the Elgin State Hospital, has resigned, to take effect March 1.

Hospital Needs of Cook County.—The president of the Board of Commissioners of Cook County, in his annual message, notes an increase of 31 per cent. in the admissions to Cook County Hospital between 1903 and 1908, and an increase of 56 per cent. in the daily average population. During 1909 there was an increase of 11 per cent. over 1908 in the daily population, or of 73 per cent. over 1903. He advises the adoption of comprehensive hospital plans, including the rebuilding of the old portion of the present hospital so as to accommodate 2,500 patients, this to be done gradually so as to interfere as little as possible with the existing hospital provisions.

Chicago

Passed Resolutions.—The Council of the Chicago Medical Society, January 10, adopted the following:

WHEREAS, the Chicago Medical Society is an integral part of a constituent society of the American Medical Association, and therefore vitally interested in the welfare of that great organization, and

WHEREAS, certain conditions exist which menace the best interests of the members of the American Medical Association, and of the profession at large; therefore, be it

Resolved, that the Chicago Medical Society in council assembled recommends the following changes in the policies and management of the American Medical Association, viz.:

1. The laws should be so amended that no one person will be permitted to hold, at the same time, more than one executive or honorary office in the Association.

2. The office of General Secretary, and the positions of Editor and Manager should be separated, and no person should be permitted to fill more than one of these places at one time.

3. The offices of Editor and Secretary should be filled only by men educated in regular scientific medicine and of unimpeachable professional records.

4. The number of Trustees should be increased.

5. All officers and employees whose duties involve financial responsibility should be bonded.

6. Th [illegible] dmission to membership in the American Medical [illegible] be so amended as to make it mandatory on the [illegible] applicants who have complied with the provisions and the by-laws governing the same.

7. Space should be set apart in THE JOURNAL for free and courteous discussion of the policies and methods of the Association, or for any other matters which may appeal to the membership at large as bearing on the interests of the Association.

8. Provision should be made for the initiative and referendum.

9. No member should be expelled from the Association without a fair trial and full hearing.

10. No person who is a general officer or member of the House of Delegates or Board of Trustees or employee of the American Medical Association should be eligible to serve as a general officer or member of the House of Delegates, or Council, of any constituent Association.

11. *Be it further resolved*, That the Secretary of the Chicago Medical Society be instructed to publish these resolutions in full in the *Bulletin* of the Society, and to transmit a copy of the same to THE JOURNAL of the American Medical Association and to the editors of the various state journals.

The above were adopted by the following vote: *Ayes.*—Gehrmann, Noble, Bell, King, J. C. Stubbs, Albro, Senn, Fischkin, O'Byrne, Fantus, Whalen, Leigh, Hogan, Moore, Nagel, Scott, Humiston, Harvey, Pence, Betz, J. E. Stubbs, Lydston, Tansey, Ferguson, Corwin, Van Derslice, Cotton. *Nays.*—Hess, Weaver, Churchill, Harris, Balderston, Abt, Green, Langer, Harpole, Paddock, Norcross, Robbins, W. A. Pusey, Gillmore, Kuh, Woodruff, B. Pusey, Beck, *Absent.*—Walls, Preble, Favill, Belfield, Ryan, Tuteur, Porter, Kaufman, Dawson, Baum.

INDIANA

Charge Against Physician Dismissed.—On the motion of the prosecuting witness in the case of Dr. James K. Moss, Ashboro, before the State Board of Medical Examination and Registration, January 12, the charge of prescribing illegally for the sale of liquor was dismissed without prejudice.

Medical Society Meetings.—At the annual meeting of the Hammond Medical Society, held January 4, Dr. William F. Howat was elected president; Dr. Francis H. Fox, vice-president; Dr. H. J. White, secretary; Drs. William D. Weis, Eleanor L. Scull, and Thomas W. Oberlin, censors.——At the annual meeting of Goshen Medical Society, January 7, Dr. Herbert K. Lemon was elected president; Dr. Charles L. Dreese, vice-president; Dr. Henry W. Eby, secretary; Dr. William B. Kreider, treasurer, and Dr. S. W. Walters, censor. The post-graduate course of study, which was so successfully carried on last year, is to be continued during 1910.

Personal.—Dr. Charles A. Carter, Indianapolis, has been appointed chief clerk in the department of statistics of the State Board of Health.——Dr. and Mrs. Henry O. Bruggeman, Fort Wayne, have sailed for Europe.——Dr. Charles W. Slick, Mishawaka, has been reappointed a member of the board of trustees of the Longcliff Hospital for the Insane.——Dr. William G. Wegner, South Bend, has been appointed commissioner of health of St. Joseph county.——Dr. Charles L. Thomas, Logansport, who was seriously injured in an automobile accident in Chicago, recently, is reported to be improving at S Luke's Hospital in that city.——Dr. J. Lucius Gray, Laport has succeeded Dr. John W. Snyder, Michigan City, as secre tary of the Laporte County Board of Health.——Dr. Felix W Hazelwood, New Albany, is reported to be seriously ill wit septicemia.——Dr. Henry Moore, Rockville, has resigned hi position on the State Tuberculosis Hospital Commissio because of physical disability and has gone to Florida t recuperate.——Dr. V. A. Magenheimer, Mooresville, is reporte to be seriously ill with spinal meningitis.——Dr. Royal Gerard, Crawfordsville, has been elected supreme chief of th Tribe of Ben Hur.——Dr. William B. Richmond has bee elected a member of the health board of Terre Haute, vic Dr. Frank A. Tabor, resigned, and Dr. Moorhead has bee named as secretary of the board.

KANSAS

Personal.—Dr. Walton J. Mitchell, Wichita, has bee reelected physician of Sedgwick county.——Drs. J. Alber Fulton, Hugh Wilkinson, and Lot D. Mabie have bee appointed members of the board of health of Kansas City.

Conference of Health Officers.—The sixth annual conferenc of state, county, and municipal health officers was held i Topeka December 8. At this meeting the Kansas State Association of Public Health Officers was organized, with the following temporary officers: President, Dr. E. C. Reynolds Iola; vice-president, Dr. Clayton F. Ralls, Winfield; secretary Dr. John J. Sippy, Belle Plaine; and treasurer, Dr. C. Granville Edgerton, Ness City.

Society Meetings.—At the annual meeting of Douglas County Medical Society, held in Lawrence, January 11, Dr. Marvin T. Sudler was elected president; Dr. George W. Jones, Lawrence, vice-president, and delegate to the state society; Dr. Harry L. Chambers, Lawrence, secretary, and D. E. Smith, treasurer.——At the annual meeting of Riley County Medical Association, held in Manhattan, the following officers were elected: Dr. James D. Colt, president; Dr. J. Carroll Montgomery, vice-president; Dr. B. Belle Little, secretary; Dr. Edwin J. Moffit, treasurer: Drs. Charles F. Little and Lewis J. Lyman, delegates to the state society, all of Manhattan.——Bourbon County Medical Society held its sixth annual meeting and banquet at Fort Scott, and elected Dr. Charles A. Van Velzer, Fort Scott, president; Dr. J. B. Cummings, vice-president; Dr. John D. Hunter, Fort Scott, secretary; Dr. Charles F. Harrar, Fort Scott, treasurer; and Dr. Winfield S. Miller, Fort Scott, censor.——Cherokee County Medical Society, at its annual meeting, held in Galena, elected Dr. Harry H. Brookhart, Scammon, president; Dr. Lee, Baxter Springs, vice-president; Dr. Claude R. Loudermilk, Galena, secretary, and Dr. Charles T. Reid, Carona, censor.——Cowley County Medical Society held its annual meeting at Arkansas City and elected Dr. Otis B. Wyant, Winfield, president; Dr. Charles Dunning, Arkansas City, vice-president, and Dr. Francis M. Wilmer, Winfield, treasurer.

KENTUCKY

To Enforce Anti-Spitting Law.—The Board of Public Safety, Louisville, issued orders January 18 that policemen in plain clothes and detectives be detailed to enforce the ordinance prohibiting spitting on the streets.

Acquitted.—Dr. Edgar W. Stokes, Louisville, who was on trial on the charge of conspiracy in attempting to defraud the Louisville Railway Company in a personal injury suit, was promptly acquitted by a jury January 11.

Needs New Hospital.—An urgent appeal to the board of directors of the Louisville Commercial Club to take up the matter of securing a new city hospital was made in a recent address by Dr. Henry E. Tuley, director of the club. Resolutions recommending the appointment of a non-partisan hospital commission were adopted at a meeting of the Jefferson County Medical Society, and a committee of five was appointed to urge the passage of an act providing for the securing of the hospital.

Personal.—Dr. William L. Nuttall, formerly superintendent of the State Institute for the Feeble-Minded Children, Frankfort, has been declared insane and committed to the State Hospital, Lakewood.——Dr. Haley P. Cartwright, Bowling Green, is reported to be seriously ill with heart disease.——Dr. Squire L. Helm, who has held that position for twenty-four years, has been reelected city physician of Lexington, and Drs. Walter O. Bullock and Joseph W. Pryor have been elected members of the board of health.——Dr. Alexius M. Forster assumed charge of the Kentucky Tuberculosis Association Sanatorium and the Tuberculosis Dispensary, January 7, and on its completion will be physician of the Waverly Hill Sanatorium.——Dr. Robert L. Bone, Madisonville, is reported to be critically ill with septicemia.——Dr. John B. Bowling, Perryville, fell on his veranda recently, sustaining a fracture of the hip, and is reported to be in a critical condition.——Dr. Alexander McKenney, Owensboro, was struck by a street car recently and severely injured.

MAINE

Society Meeting.—At the annual meeting of York County Medical Society, held in Saco, January 6. the following officers were elected: President, Dr. Clarence E. Thompson, Saco; vice-president, Dr. Fitz E. Small, Biddeford; secretary, Dr. Lester L. Powell, Saco; treasurer, Dr. Lawrence E. Willard, Saco; censors, Drs. Harry L. Prescott, Kennebunkport, Ernest L. Burnham, Sanford, and Paul S. Hill, Biddeford; and delegates to the state association, Drs. Jasper D. Cochrane, Saco, and Charles W. Blagden, Sanford.

Report of the Surgeon General.—In the annual report of Col. James B. O'Neil, Portland, surgeon-general, Maine National Guard, to the governor, he reports the following recommendations: That the hospital corps be furnished proper quarters for inspection and drill, and suitable individual lockers for clothing and equipment; that a modern ambulance be supplied; that at least two complete regimental infirmary outfits be at once obtained; that incinerators be installed at the state muster grounds; that the present system of kitchens and cookstoves be abolished and the camp cooking outfit of the regular establishment be substituted. During the year Captain John F. Hill, Waterville, resigned, and Dr. John G. Towne, Waterville, was appointed first lieutenant and assistant surgeon in his place.

MONTANA

Medical Society Election.—The Fergus County Medical Association, at its annual meeting in Lewistown, elected Dr. Abraham Poska, Philbrook, president; Dr. Charles C. Wallin, Lewistown, vice-president, and Dr. John T. Foley, Lewistown, secretary-treasurer.

Addition to Hospital.—The management of the Deaconess Hospital, Great Falls, has purchased three lots on Sixth avenue, opposite the hospital, on which they will build a two-story brick and stone structure 100 feet in length, which will be utilized as a home for the nurses of the institution.

Personal.—Dr. Crawford Johnston, Culbertson, has been appointed local surgeon for the Great Northern System.——Dr. John J. Mahoney, Missoula, has been appointed physician of Missoula county, vice Dr. George F. Turman, Missoula, resigned, and started for Europe.——Dr. Edgar C. Lee, Deer Lodge, has returned from Europe and resumed practice.

NEW HAMPSHIRE

Personal.—Dr. Edward D. Burt, Lincoln, recently underwent operation in a hospital in Boston.——Dr. Patrick J. McLaughlin has been appointed city physician and Dr. Albert F. Mulvanity, chairman, of the board of health of Nashua.

Money to Hospital.—By the will of Mrs. Isabel M. Fowler, of Little Boar's Head, the Margaret Pillsbury General Hospital, Concord, receives $15,000, the income of which is to be applied to providing hospital treatment for poor women and girls.

NEW JERSEY

Personal.—The board of health of Gloucester City organized January 10, and elected Dr. John K. Bennett, secretary-treasurer.——The board of health of Ocean City has reorganized with Dr. N. Howard Burt, president.——Dr. William F. Ridgway, Atlantic City, sailed from New York for England, January 15.

Hospital Staff Named.—The board of governors of the North Hudson Hospital has appointed the following medical staff for 1910: Consulting surgeon, Dr. Frank Gray, Jersey City; attending surgeons, Drs. Joseph M. Rector, Jersey City, Louis E. Poole, West Hoboken, Adam E. Fendrich, Weehauken, and John C. Farr, Hoboken; assistant surgeon, Dr. Edward B. Meisgeier, West Hoboken; consulting physicians, Drs. Egbert LeFevre, New York City, Eugene E. DeGrofft and Richard Schlemm, Weehauken; attending physicians, Drs. Leo H. Shenier, West New York, H. J. Spaulding, Weehauken, and William Meyer, West Hoboken; consulting neurologist, Dr. William J. Arlitz, Hoboken; consultant of disease of the lungs and heart, Dr. John Nevin, Jersey City, and anesthetist, Dr. Fred J. Quigley, Union.

Officers Elected.—The Gloucester County Medical Society elected the following officers at its annual meeting January 20: President, Dr. Cyrus B. Phillips, of Pitman; vice-president, Dr. J. Harris Underwood, Woodbury; secretary and treasurer, Dr. George E. Reading, Woodbury; reporter, Dr. Howard A. Wilson, Woodbury; censors, Drs. James Hunter, Jr., Westville, Luther M. Halsey, Williamstown and Harry A. Stout, Wenonah; and delegate to the state society, Dr. Charles S. Heritage, Glassboro.——At the annual meeting of Atlantic County Medical Society Dr. Edwin H. Harvey of Chelsea was elected president, Dr. Thomas G. Dunlap, Atlantic City, vice-president, Dr. Edward Guion, Atlantic City, secretary and treasurer, Dr. Theodore Senseman, Atlantic City, reporter, and Dr. Edward A. Reiley, censor.

NEW YORK

Personal.—Dr. J. Orley Strannahan has been reelected chairman of the board of health of Rome, and Dr. Charles R. Mahady has been reelected health officer.——A committee of the Amsterdam State Medical Society is making arrangements to celebrate the fiftieth anniversary of the practice of medicine in Amsterdam of Dr. Salphronius H. French.

Bills Before Legislature.—The Garfein bill requires every employer to provide insurance indemnity for the benefit of his employees. An employee whose salary is $2,000 a year or less, injured while at work, is to be entitled to a weekly compensation equal to the amount of his salary while incapacitated. If the injuries result in death, the next of kin are to be allowed to recover damages for the full amount of the insurance policy, which is not to be more than $20,000.——The Hoey bill provides for a department of ambulance service for New York City, with a commission appointed by the Mayor at the head, instead of the present board of ambulance service consisting of the commissioner of police and charities and the president of the board of trustees of Bellevue and the Allied Hospitals.

Tuberculosis Notes.—The twenty-fifth anniversary of the Adirondack Cottage Sanatorium, Saranac Lake, will be held February 1. Twenty-five former patients who have been cured from tuberculosis will take part in the celebration.——In the annual report of the superintendent of the State Tuberculosis Hospital, Ray Brook, he reports that no patient can be admitted until April 1. The inability of the state hospital to accommodate all who wish to gain admission is hastening the consideration of more adequate means of tuberculosis treatment in the various cities, towns and counties in the state, where many sanatoria are being built or are under consideration.——A bill has been introduced in the legislature providing for the establishment of a state hospital for the treatment of cases of intermediate and advanced pulmonary tuberculosis.——A committee having in charge the gathering of funds for the erection of a tuberculosis sanatorium in connection with Albany Hospital, has received subscriptions for $17,000 of the $30,000 required. The sanatorium is to be erected on the land recently deeded to the hospital by Howard Van Rensslear.

New York City

Loeb Goes to Rockefeller Institute.—A department of experimental biology has been organized in the Rockefeller Institute, and Dr. Jacques Loeb of the University of California has been elected its head.

Enlarge Sloane Maternity.—The trustees of Columbia University have filed plans for an annex to the Sloane Maternity Hospital. The new building will be eight stories and will harmonize with the design of the present edifice. The cost will be $120,000.

Montefiore Home to Move.—The trustees of this institution have purchased fourteen acres of land in the Bronx fronting on Gun Hill Road and extending to 210th street. It is reported that $2,000,000 will be expended in improving the property. The hospital equipment planned will give accommodation for at least 600 patients.

Gifts to Hospitals.—The will of Darius Ogden Mills gives $100,000 to the Home for Incurables in this city and $25,000 to the American Red Cross.——Mrs. Helen Hartley Jenkins has given $25,000 to the Lying-in Hospital for a special study of puerperal fever. The fund is to be known as the Emma Hartley Endowment in memory of the donor's mother.

New Medical Society.—Physicians residing above One Hundred and Sixtieth street on Washington Heights have organized the Audubon Medical Society with the object of promoting scientific, professional and social relations. Dr. F. D. Uferrigan has been elected president; Dr. Roger H. Dennett, vice-president; Dr. W. H. Allison, secretary; Dr. Lynn L. Fulkerson, treasurer, and Dr. John N. Bassin, member of the scientific committee. At the meeting February 4, Dr. Benjamin T. Tilton will read a paper on "Acute Abdominal Emergencies."

New Quarters for Old College.—President Nicholas Murray Butler of Columbia University announces that within the past few weeks Columbia University has received gifts amounting to more than $1,000,000 for the purchase of the entire block between One Hundred and Sixteenth and One Hundred and Seventeenth streets and Amsterdam and Morningside avenues. The College of Physicians and Surgeons will be moved to this site. Part of the new medical school equipment will be a building devoted entirely to medical and surgical research in which cancer research can be carried on under the terms of the will of George Crocker. The estimated cost of this undertaking is $3,000,000. Large contributions have been received from William K. Vanderbilt, George J. Gould, Frank A. Munsey and an anonymous donor.

PENNSYLVANIA

Loving Cup Presented.—Dr. Francis A. Goeltz left Erie January 21, to take up his residence in Nyssa, Ore. On January 11 he was tendered a farewell dinner at the Erie Club by the staff of the Hamot Hospital, when he was presented with a silver loving-cup, suitably engraved, by the other members of the staff.

Decrease of Fatal Accidents in Mines.—In 1909, there was a marked decrease in the fatal accidents in the mines of the state as compared with 1908, the figures being 1,045 as compared with 1,250. The record of the year in the soft-coal region was 494 fatal accidents as compared with 572 in the preceding year, a decrease of 78, or 4 per cent. In the hard-coal region the decrease was more marked—in 1909, 551 fatalities against 678 in 1908.

Personal.—Dr. Charles Campbell, Petersburg, has been appointed division physician for the Pennsylvania System.——Dr. Harry F. Smith has been appointed police and fire surgeon of Scranton, vice Dr. Ernest L. A. Keisel, resigned.——Drs. James P. Gilligan, Maurice B. Ahlborn, Lawrence A. Sheridan and Edward R. Roderick have resigned from the staff of Mercy Hospital, Wilkes-Barre.——Dr. Charles P. Knapp has been elected president of the Wyoming Board of Health.——Dr. S. R. Molineux has been appointed assistant at the Robert Packer Hospital, Sayre.

The Flexner Portrait.—The permanent portrait committee of the Medical Department of the University of Pennsylvania reports that at present six professors are not represented in the collection of portraits of former professors of the medical school. A special appeal is made for contributions to secure the portrait of Dr. Simon Flexner, who was professor of pathology from 1899 to 1903. A special committee composed of these classes and of Dr. Flexner's associates and assistants has been appointed to institute such action as may be necessary to this end. Subscriptions should be sent to the treasurer, Dr. William Pepper, 1811 Spruce street, Philadelphia.

Medical Societies.—At the annual meeting of the Medical Society of Franklin County, the following officers were elected: President, Dr. John C. Gilland, Greencastle; vice-presidents, Drs. Frank N. Emmert, Chambersburg, and Thomas D. White, Orrstown; secretary, Dr. John J. Coffman, Scotland (reelected); assistant secretary, Dr. H. Clay Devilbliss, Chambersburg; treasurer, Dr. Johnston McLanahan, Chambersburg, and censor, Dr. Guy L. Zimmerman, Lemasters.——Physicians of Waverly, Sayre and Athens met in Sayre December 27 and took preliminary steps toward effecting a permanent organization to be known as the Valley Academy of Medicine. The following temporary officers were elected: President, Dr. John T. Holcomb, Athens; secretary, Dr. Marcus C. Hunter, Sayre, and treasurer, Dr. Leon S. Betowski, Waverly.——Allegheny County Medical Society, at its annual meeting, held in Pittsburg, January 12, elected the following officers: Dr. Markley C. Cameron, Pittsburg, president; Drs. James I. Johnston, Pittsburg, William K. Walker, Dixmont, Edward M. Hand, Coraopolis, and David C. Boyce, Pittsburg, vice-presidents, and Dr. William B. Ewing, Pittsburg, secretary-treasurer.

Philadelphia

Bequests.—The will of the late Matthew Corr bequeaths $5,000 each to St. Joseph's, St. Mary's and St. Agnes' hospitals to endow beds.——The will of the late Elizabeth P. Watson directs that her whole estate ($50,000) be held in trust for her sister, Ellen, and at her death that $5,000 each be given to the Home of the Merciful Saviour for Crippled Children, the Germantown Dispensary and Philadelphia Home for Incurables.

Spitzka Misquoted.—Dr. Edward A. Spitzka, professor of anatomy in Jefferson Medical College, states that an erroneous impression has been conveyed by the public reports concerning his recent address before the Clerical Brotherhood. He does not believe that physicians should put suffering persons to death, and does not in any way favor the delegating to any physician the right to administer lethal doses in any case. The physician's duty is to preserve life whenever possible, though he may attempt to relieve extreme suffering by proper methods.

Library for County Society.—At the meeting of the County Medical Society held January 19, it was announced that the society had decided to establish a medical library for the use of its younger members. The library committee was authorized to contract with the Free Library of Philadelphia for the reservation of alcoves in the different branches throughout the city for medical books and publications. These works are to be selected by a committee composed of Drs. James M. Anders, M. Howard Fussell, Herman Allen and Edward E. Montgomery. An initial appropriation of $300 was made by the society for the purchase of books and journals.

University Assumes Control of Phipps Institute.—Some weeks ago, Henry Phipps announced the gift of $500,000 for the erection of a new building, to be used by the Phipps Institute (for the study and prevention of tuberculosis), and to be managed by the University of Pennsylvania at its completion. Provost C. C. Harrison of the University has announced a change of plan whereby the University will assume control at once and has appointed the following committee of physicians connected with the University Medical School to arrange for the reorganization of the Institute: Drs. Charles H. Frazier, John H. Musser, David L. Edsall, Alexander C. Abbott and Provost Harrison, ex officio.

Personal.—Dr. Joseph Price is seriously ill at his country home at Whitford, near West Chester with nervous breakdown complicated by blood poisoning.——Dr. John C. DaCosta is dangerously ill with acute congestion of the lungs.——Dr. Frank A. Craig was appointed physician in charge of the Tuberculosis class of the Presbyterian Hospital, January 13.——Dr. Mary M. Wolfe, who is now in charge of the Stonyhurst Sanitarium, Honesburg, and who served as assistant physician at the State Hospital for the Insane, Norristown, from 1899 to 1901, and chief resident physician in the woman's department of the same institution until October, 1909, has been appointed clinical professor of psychiatry in the Woman's Medical College of Philadelphia.——Dr. James K. Young has been elected associate professor of orthopedic surgery in the University of Pennsylvania.——Dr. John M. Swan has been elected associate professor of clinical medicine in the Medico-Chirurgical College.——Dr. Harry Hudson has been made associate in orthopedic surgery in Jefferson Medical College.——J. Percy Keating, son of the late William V. Keating, has been elected a member of the board of trustees of Jefferson Medical College.

Officers Elected.—The seventeenth annual meeting of the Medical Club of Philadelphia was held January 21. The following officers were elected: President, Dr. James B. Walker; vice-presidents, Drs. William L. Rodman and Dr. S. Lewis Ziegler; and treasurer, Dr. Lewis H. Adler, Jr.——At the annual meeting of the Northwestern Medical Society, the following officers were elected: President, Dr. J. William Pancoast; vice-president, Dr. Nathan G. Ward; secretary, Dr. Harry Hudson; treasurer, Dr. William McKeage; and censors, Drs. Samuel M. Wilson, Lewis S. Somers and J. Edward Wallis.——The Section on General Medicine of the College of Physicians, at its annual meeting, January 10, elected Dr. John C. DaCosta, Jr., chairman, and Dr. Clifford B. Farr, clerk.——The following officers were elected and inducted at the annual meeting of the Philadelphia County Medical Society, January 19: President, Dr. Henry Leffman; vice-presidents, Drs. William S. Newcomet and G. Morton Illman; associate vice-presidents: North branch, Dr. Samuel Wolfe; South branch, Dr. R. Oliver Kevin; West Philadelphia branch, Dr. Christian B. Longenecker; Kensington branch, Dr. John J. Gilbride; North East branch, Dr. Elmer E. Keiser; and Germantown branch, Dr. Frank B. Gummey; secretary, Dr. William S. Wray; assistant secretary, Dr. Alexander R. Craig; treasurer, Dr. Collier L. Bower; censor, Dr. Judson Daland; delegates to the United States Pharmacopeia convention: Drs. Henry W. Cattell and Edward W. Watson, and Drs. Albert M. Eaton, Edward Q. Thornton and Martha Tracy, alternates.——The West branch of the Philadelphia County Medical Society, at its annual meeting, December 24, elected Dr. Henry D. Jump president and Dr. Charles A. E. Codman, clerk.——The Philadelphia Medical Examiners' Association, at its meeting, January 4, elected the following officers: Dr. Samuel E. Walker, president; Dr. Samuel H. Brown, vice-president; Dr. Norris S. McDowell, secretary; Dr. George D. Morton, treasurer; and Drs. Walter C. Stillwell, Robert W. Bruce, and Joseph D. Farrar, censors.

FOREIGN

Clinic for Occupational Affections.—A clinic for occupational affections is maintained by Milan, Italy, with assistance from private subscriptions, mainly from manufacturers. Persons with occupational affections are sent to this clinic from all parts of Italy, and ample laboratory and other arrangements are made for forty graduate students, so that physicians are able to make a special study of this important and hitherto comparatively neglected branch of medicine. The clinic has three pavilions, with accommodations for about 90 patients besides an isolation ward for occupational infectious diseases. A library of works relating to occupational affections is also being collected, and a hall is set apart for the meetings of the international commission for study of occupational affections, which has its permanent seat in Milan, and in which seventeen states are represented. The Berlin *Zeitschrift für ärztliche Fortbildung* in a recent issue speaks enviously of this new Italian clinic, urging the erection in Germany of an institution of the kind for graduate research in internal and surgical occupational affections and industrial accident cases.

Congress on Occupational Affections.—The second International Congress for Occupational Affections is to be held at Brussels, Sept. 10-14, 1910. Membership is open to all persons and corporations interested in industrial and occupational affections and prophylaxis. Six topics have been appointed for discussion: 1. Is it possible to classify occupational affections and industrial accidents separately? 2. Medical aspect of occupational affections, prophylaxis and hygiene. 3. Campaign against hookworm disease. 4. The eye and the illumination in respect to occupational affections. 5. Caisson work. 6. Occupational poisoning. The articles on these and other subjects should be in the hands of the secretary before May 31; address Ministère de l'Industrie et du Travail, Rue Lambermont 2, Brussels, Belgium. The first congress of the kind was held at Rome last spring. It brought out in striking fashion the evils of the workmen's compensation legislation in Germany, which is engendering incurable neuroses after industrial accidents. The profession no longer calls them "traumatic neuroses" but "industrial legislation neuroses."

Leprosy in Colombia.—Dr. P. G. Medina, professor of hygiene and physiology at the medical school at Bogota, Colombia, was commissioned by the government to ascertain the number of lepers in the country and study the best means of treatment, and his report has just been published after four years of assiduous research. He states that the general impression in regard to the vast number of lepers in Colombia is grossly exaggerated. He found a total of 3,031 lepers in the three state leper colonies and only 1,275 outside, most of whom will soon be admitted to a new colony now being established. His report appears in the recently founded *Repertorio de Medicina y Cirugia*, published at Bogota, and he describes the effects of the various therapeutic measures that have been tried. The Carrasquilla antileprosy serum sometimes induces a marked febrile reaction with chills, headache and sweating, and in the cases in which this was observed, notable improvement followed and has persisted to date. No effect was apparent in the cases in which this pronounced reaction did not occur. Arrangements are being made to continue this serotherapy on a larger scale. The 120 patients to whom it has been already applied are anxious to continue it, but the benefit from chaulmoogra oil is more constant and seems to be permanent. In a number of cases of the tubercular type, the lesions have retrogressed and if the improvement which has persisted for a year continues to be evident the patients may be regarded as permanently cured.

LONDON LETTER

(From Our Regular Correspondent)

London, Jan. 15, 1910.

Establishment of a Radium Bank in London

The prohibitive price of radium has led to the establishment of a novel institution—a radium bank where the precious metal may be stored and rented to physicians, scientists and others who wish to use it but cannot afford to pay $80 a milligram, its present market price. The ultimate locality of the bank is to be in the neighborhood of Cavendish Square, in the heart of the district in which the London consultants live, but for the present temporary offices have been opened at Moorgate street in the heart of the commercial and banking district of the city. For an average operation 50 milligrams of radium are required, costing $4,000 and therefore it is only at one or two of the London hospitals that radium can be used to any extent. A number of business men have combined to form the bank which will "let" 100 milligrams at $200 for one day's use and for each subsequent day at ½ per cent. on the value of the amount issued. Securities will have to be given. The bank purposes to stock radium to the value of $250,000, The difficulty is in getting a supply of radium. The main source has been the pitch-blende from Joachimsthal, Bohemia, which yields one part in 3,000,000. A new supply has been discovered in the bed of a stream near Guarda in Portugal. In England two Cornish mines have yielded a little but the whole available supply is limited owing to the enormous expense of extraction. Although radium exists in air, sea water and almost everywhere, there is hardly an ounce of the pure metal in the world. The bank will be organized very much after the model of a similar institution in Paris, through which most of the radium used in England has hitherto come.

Successful Heart Massage in Chloroform Syncope

Dr. V. B. Orr has reported at the Royal Society of Medicine a successful case of heart massage in chloroform syncope. A patient was about to be operated on for gastric trouble when the heart failed. The surgeon, Mr. Charles Stonham, opened the abdomen and massaged the heart from below the diaphragm about three or four minutes after the failure. In response to the stimulation the pulsations returned and the patient recovered. Another case was mentioned by Dr. E. H. Starling in which a weakly child, aged 11 months, required needling for cataract. Chloroform was given from a Junker's inhaler and was well taken. When the child was under, the head was slightly raised to adjust the towels, and both pulse and respiration ceased. The head was lowered and artificial respiration performed, while ether and strychnin were administered hypodermically and warm saline solution was injected into the rectum. Fingers were passed under the ribs and the heart was compressed five or six times. A gasping inspiration was taken and the heart was heard to beat again, after which recovery gradually took place. The best results—ten successful cases—have now been recorded from the subdiaphragmatic method of heart massage.

Physicians in Politics

The general election which begins to-day is the most important which has taken place in the last two generations because of the magnitude of the issues involved—the supremacy of the peers or the people and taxation of imported necessaries of life in a country dependent for its very existence on its foreign trade. Unlike his French confrère, the physician here plays very little part in politics. For those in practice it is considered unwise to take a public part because it tends to offend patients or possible patients on the opposite side. But no such restraint applies to those who do not practice or who have retired from practice. The training and occupation of the physician, however, does not help him to become an active politician. As a rule, unlike that of the lawyers who play a very large part in politics, he is a poor speaker. If he aspires to enter parliament he must be wealthy to a degree seldom attained in the profession. He must have enough money to live on, pay a large part of his election expenses and subscribe to the various charities and clubs of his constituency. Going back as far as the reign of Queen Elizabeth the total number of physicians who have sat in parliament seems to have been only about 60. Very few were men of eminence in their profession. Exceptions are the celebrated John Radcliffe, the founder of the Radcliffe Library at Oxford, who sat in the reign of William and Mary. John Friend, a fellow of the Royal Society and a censor of the Royal College of Physicians, sat in the reign of George I

Later in the reign of William IV came Thomas Wakeley, the founder of the *Lancet*, an ardent political reformer. Among men of eminence in the profession who have sat at the present day are the late Sir Michael Foster, the physiologist, and Sir William Priestley the gynecologist. In the parliament which has just dissolved sat S. [illegible] the ophthalmologist, and Sir Walter Foster, once professor of medicine in Birmingham and a well-known medical writer. The last two with Sir A. R. Simpson, the former professor of midwifery at the University of Edinburgh, and Dr. Addison, professor of anatomy at St. Bartholomew's Hospital, are the most eminent physicians who are candidates for the next parliament. Altogether there are 24 medical candidates—16 in England, 4 in Scotland and 4 in Ireland. Of these 5 have never been practitioners and after qualifying abandoned medicine for some other career. The profession has never shone in parliament. It has never produced a great speaker or statesman of the first rank. The medical members are simply ordinary units though they are listened to with attention when any topic with medical bearings is under discussion. On the other hand the legal profession is represented out of all proportion to its importance. The present prime minister and most of his important colleagues including the chancellor of the exchequer and the secretary for war belong to it. Several times the idea has been put forward that the medical profession should be represented specially in parliament but this has never proved practicable. The medical members there do not represent it as such but, like other members, one party, liberal or conservative. As physicians are scattered all over the country and individually exercise very little influence in politics it is difficult to see how they can ever have a special representation. One of the candidates for the Harley street and Cavendish Square district of London, however, is Dr. R. O. Moon, a fellow of the College of Physicians. He has probably been brought forward with view to secure the votes of the numerous physicians in that locality, but these are but a small fraction of the whole.

Sleeping Sickness in Uganda

The report of Sir Hesketh Bell, the governor of Uganda, on the measures adopted for the suppression of sleeping sickness, is very unfavorable to Koch's atoxyl treatment. At first it seemed to be efficient but later it produced blindness to such an alarming extent that its use had to be considerably restricted. All that can be claimed for the drug treatment is that in a great number of cases it prolonged life and relieved suffering; but no case of undoubted cure can be produced among all the thousands of patients treated.

Rat-Bite Fever

Under the title of rat-bite fever Dr. Horder, of St. Bartholomew's Hospital, has reported in the *Quarterly Journal of Medicine* 3 cases of a previously undescribed disease. All the cases presented the following points in common. A bite from a rat is sustained which may or may not suppurate. After an incubation period, in 2 cases of 28 days and in the other case of a few days less lymphangitis of the tissues about the bite with malaise, anorexia, and fever supervene. At the same time erythematous indurated patches appear irregularly distributed over the skin and diffuse tender swellings in the muscles. The attack may last from a few days to a week. A series of similar attacks follow at regular intervals sometimes for several months. The intervals vary from 3 to 10 days. Blood examination for microbes was negative but leucocytosis was present during the fever. Spontaneous recovery ensues and no treatment has proved of value. Dr. Horder suggests that the infective agent is a protozoon.

PARIS LETTER

(From Our Regular Correspondent)

Paris, Jan. 7, 1910.

A New University

The bill organizing the schools of higher instruction of Algiers into a university (The Journal, Sept. 4, 1909, liii, 807), has just been passed. The school (*école*) of the practice of medicine and pharmacy of Algiers is thus transformed into a college (*faculté*) of medicine and pharmacy. The bill, however, aroused lively objection, the present condition of the future university of Algiers hardly appearing to justify this transformation. Thus, so far as the school of medicine is concerned especially, official statistics show 125 students on January 15, 1909, but in reality it is necessary to deduct from this number 25 students who are taking the midwives' course and as many native auxiliary physicians. There are, therefore, far from the number of 250 pupils generally considered necessary for the transformation of a school into a college in order to assure emulation and the maintenance of a proper level of scholarship. In other respects the school of Algiers is hardly more satisfactory. There are few professorships; there is no clinic of mental medicine. The hospital of Mustapha is insufficient, containing only 40 beds for men and 20 for women for each of the services of clinical medicine and surgery. Considerable expense, then, will be required, quite out of proportion to the utility of the project.

During the discussion of the bill M. Peytral, senator from the department of the Bouches-du-Rhône, suggested the transformation of the Marseilles school of practice of medicine into a college. This school occupies a singular situation. It is part of the University of Aix-en-Provence, which is the seat of the colleges of law and of letters. For a long time Marseilles, possessing a college of sciences and a school of medicine, has demanded the transfer thither of the colleges of Aix. To-day this movement tends to be less pronounced, but Marseilles would like at least to transform her school of medicine into a college. It should be recognized that this transformation would be much better justified than that of the school of Algiers. The Marseilles medical school has in fact grown considerably. It has at the present almost as many medical students as the college of Montpellier or that of Toulouse, and even more than there are at Lille or Nancy. It has, moreover, 33 professorships, among which there are some for unique subjects, dealing with the diseases of tropical countries; for the port of Marseilles receives more colonial patients than any other French port. The hospitals of Marseilles contain more than 1,000 beds and furnish a large number of anatomic subjects. The city of Marseilles annually expends $30,000 (150,000 francs), for the support of the medical school, which is well equipped and installed in a splendid building, the Château of Pharo, which belonged to Napoleon III and which the Empress Eugénie gave to the city.

Exclusion of a Medical Student for an Attack on a Professor

During an examination a Paris medical student assaulted Dr. Prenant, professor of histology. The council of the University of Paris has just excluded this student forever from all the colleges and schools of higher instruction.

Legislation in Regard to the Labor of Women and Children

M. Viviani, Minister of Labor, has just submitted for the signature of the President of the Republic a decree restricting the weight of the burdens which may be carried or drawn by children under 18 and women of all ages employed in industry and commerce. This decree will effectively repress the abuses observed in numerous factories where, without regard to the age of the children employed or the strength of the women, they are constantly obliged to draw or to carry burdens of considerable weight. Hereafter a boy under 14 may carry no more than 22 pounds (10 kilos); from 14 to 15, no more than 33 pounds (15 kilos); for girls or women the limits are, under 14 years, 11 pounds; from 14 to 15 years, 17½ pounds; from 16 to 17 years, 22 pounds; 18 years and up, 55 pounds (25 kilos). The use of wheelbarrows and push-carts is forbidden to boys less than 14 and to girls under 18. It is forbidden to allow women to carry, push or drag any burden whatever during the three weeks following confinement.

Reform of the Thesis Requirement for the Doctorate

The commission for the reform of medical studies has been debating the question of the suppression of the thesis for the doctorate for a long time. A bare majority was in favor of the thesis; but the assembly of the medical schools recognized that the suppression of the thesis would be impossible, for the law permits only doctors whose theses have been accepted to practice medicine. Moreover, the maintenance of the equality of the doctorate in medicine with the corresponding degree given by the other schools—the very dignity of the medical profession—demands the preservation of the thesis. There was little doubt on the first point.

The second question, however, was whether it would be possible to require theses without compelling all the graduates to go to the expense of printing. This question brought forward a very interesting and original suggestion from Dr. Regaud, *agrégé* at the Lyons medical school, which was finally approved. Among the theses for the doctorate there are some very remarkable ones which contribute greatly to the reputation of our schools. There are some, on the other hand, which are so inferior that it is really a pity to let them go out to represent French medicine in foreign collections. Unfortunately, it is impossible to refuse these theses, even the worst of them, for they always represent a pecuniary expense which one would hesitate to compel the student (or rather his family) to repeat, and then, many such authors are not sufficiently accustomed to the expression of their thoughts to produce a creditable work. According to Dr. Regaud's plan, the candidate would produce a thesis, of which he would have several copies made in typewriting, and which would be sustained and passed on, but only the theses receiving the mention "very good" would be admitted into the collection of the printed theses of the school. It goes without saying that the rights of the doctors whose theses had been received in manuscript, and those whose theses had been printed, would be the same. All would have the same prerogatives; only the latter would be laureates of the school and the others would not. Against this plan the objection was urged that to lay the authors of the best theses under additional expense would be an odd way to reward them; but it is probable that most of the young physicians would be proud to receive the honor and would willingly stand the expense attached thereto. Moreover, the thesis fees might be raised a little and a sufficient sum subtracted to make up a number of thesis purses to be given to those for whom the expense would be a burden; or those candidates who would have to have their theses printed might be excused from the thesis fees.

May a Hospital Physician Call a Surgeon from Another City Without Authorization of the Hospital Board?

Some time ago a case arose in Loupe (Eure-et-Loir) in which a hospital physician, without previously consulting the board, called a surgeon from another city to perform an operation on an injured working man. The court of appeals, to which the case was carried, has decided that, considering that the hospital was not provided with surgical equipment, or with suitable means of antisepsis for operations, that consequently in a delicate and urgent case the interests of the patient required the summoning of a specialist surgeon, and that the amount asked by this surgeon for his fee and expenses was not excessive, the administrative board of the hospital should assume the expense, since the hospital is by law obliged to give to injured patients all the attentions that their condition requires.

Responsibility of the Nurses' Agencies

There are in Paris several agencies which undertake to procure nurses for patients. The question has just come before the courts whether, if a nurse sustains an accident in the performance of his duties, the agency which has placed him in the position is responsible for this accident. The courts have decided that the agency is not subject to the law in regard to accidents of labor, as there can be no contract of labor between the agency and the nurse; the agency simply plays the part of an employment bureau and the nurse is not under its surveillance when he is in attendance on a patient, to whom, moreover, the nurse is free not to go. It seems to follow from these decisions that in case the nurse placed through an agency should be capable of any indiscretion, it would be impossible for the patient to hold the agency legally responsible.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, January 6, 1910.

Personals

Three of the older representatives of German medical science are celebrating jubilees: Professor Hegar, a noted gynecologist, formerly director of the Freiburg clinic, celebrates his eightieth birthday; Professor Bernhard Schultze, formerly director of the Jena gynecologic clinic, the fiftieth anniversary of his doctorate; and Professor Kehrer, formerly chief of the Heidelberg clinic for women, the semicentennial of his doctorate. The first named particularly shows still great intellectual activity. He not only carries on his *Archives* but now and then publishes a contribution of his own to clinical gynecology.

Professor Henkel, the gynecologist of Greifswald, has been chosen as director of the Jena clinic as successor of Professor Franz, who has been called to Kiel, and Professor Jung, the gynecologist of Erlanger, has been chosen as head of the Göttingen clinic as successor of Professor Runge. In place of Professor Doutrelepont, retired, Prof. E. Hoffmann of Halle has assumed the direction of the skin clinic at Bonn.

Congress on Internal Medicine

This year's congress on internal medicine (the twenty-seventh), which is to be attended by foreign physicians, will meet April 18 to 21 at Wiesbaden under the presidency of the Berlin clinician, Professor Kraus. The following are now listed as subjects for discussion: 1. The Specific Diagnosis and Treatment of Tuberculosis. The leaders of the discussion are to be Professor Schütz of the veterinary school of Berlin and Professor Benzoldt of Erlangen. 2. The Origin and Treatment of Secondary Anemias. This will be presented in a paper by Professor Gerhardt of Basel.

Increase of German Students

The entire number of students in the twenty-one universities of the German Empire in the summer semester of 1909 amounted to 51,500. In 1879 the number was 19,771, an increase of 160 per cent. in thirty years. The number of foreign students has risen in these thirty years from 1,232 to 3,972. There are now 78.4 students for 100,000 inhabitants against 43.4 thirty years ago. In the last summer semester there were 7.250 law students, thirty years ago, 3,179; 4,879 medical students; in 1879, 2,061; 920 dental; in 1879, 17. Calculated on the basis of 10,000 inhabitants the number of law students has risen from 12.3 to 19.5, the medical students from 8 to 13.3 and the number of students of other departments has increased to a greater or less extent with the exception of Protestant theology in which there has been a regression from 5.9 to 5.6.

Premiums for Breast Nursing

The introduction of premiums for breast nursing has had the effect of inducing mothers to nurse their own children and has exercised a favorable influence on the nutrition of infants. Wiesbaden has appropriated since April 1, 1909, about $600 (2,500 marks) for this purpose. The number of mothers who nurse their own children is not small (amounting to 70 per cent.) but the period of nursing is insufficient. The efforts of the lately established mothers' counsel stations in Wiesbaden are directed to prolonging this period. For this purpose the nursing premiums are raised from month to month, a constant stimulus being thus maintained to keep women from neglecting nursing. This has resulted in sixty-four women who formerly nursed their children from two to three months prolonging the period from eight to twelve months. From April 1, 1909, until now 139 women have been assisted by nursing premiums. Of these forty-two had not previously nursed their children.

Insurance for Age and Disability for 1908

According to the facts just published the insurance for age and disability furnished about 184,000,000 weekly contributions. During the year 140,000 pensions were granted, 117,000 for disability, 12,000 for sickness and 11,000 on account of age with an average annual amount of from $40 to $50 (163 to 170 marks). For the treatment of disease about $4.500.000 (18,000.000 marks) were expended; for the care of the disabled $205,000. The expenses of management amounted to $4,500,000. The entire income for the year 1908 amounted to $58,000,000, the expenses $37,000,000, so that there was an accumulation of about $21,000.000, The assets of the insurance societies amounted to $375,000,000, to which must be added the book value of the inventories, amounting to about $1,500,000.

Extraordinary Memory of the Feeble Minded

In a late number of the *Journal for School Hygiene* (*Zeitschrift für Schul-Gesundheitspflege*) a Munich physician, Dr. Weigl, publishes some interesting facts about the astonishing feats of memory of mentally defective children. In the Vienna Society for Psychiatry and Neurology a feeble-minded boy was presented who knew the calendar for a thousand years so thoroughly that he could name every past and future date to the year two thousand, and every feast day, immediately and without deliberation. He could give no explanation of the mechanism of his performance. If he was asked by what method he found the day of the week for any date he repeated one of the formulas existing for it which he had learned from a calendar. It was easy to perceive, however, that he himself made no use of this formula. His knowledge of the calendar always seems to stop abruptly with the year two thousand. It must be assumed that the boy depends on material which he has thoroughly learned.

An analogous case is furnished by the well-known Salzburg calculator, a cretin of high grade who lived until 1853 in Salzburg, and could perform the most complicated calculations in his head with incredible celerity. A Warsaw physician reports the case of a twenty-two year old idiot whose brain was affected since his seventh year in consequence of a severe typhoid, who, although he could neither read nor write, reckoned with extraordinary quickness, e. g., *multiplied figures of two places* as soon as asked. From an English asylum there comes a report of an idiot who knew many hundred dates from English history, especially the dates of the births and deaths of noted men. Psychologists have not yet succeeded in explaining all these phenomena.

Pharmacology

DR. TAYLOR & CO.

An Advertising "Specialist" Convicted of Obtaining Money by False Pretense

A most important trial and subsequent conviction has just been concluded in San Francisco; it is the first case in the United States in which an advertising "specialist" has been convicted by a jury of the crime of trying to obtain money by false pretense. The man, John J. Arberry, a graduate of the medical department of the University of Kentucky, 1891, and licensed to practice medicine in California in 1895 (before the examining board was established), was arrested in July, 1909, the trial being held this month—January, 1910.

Dr. Arberry was the "chief consulting physician" in a widely advertised concern known as "Dr. Taylor & Co.," *a corporation, the principal stockholder of which, Dr. Arberry testified* on the stand, is one O. C. Joslen, who formerly had a license to practice, which license was revoked in 1905, after a conviction in the U. S. Court for sending immoral literature through the mail; the literature was an offer to produce an abortion. Several other advertising concerns are largely owned by the same Joslen, but they are operated by very shrewd licensed physicians and their advertising is generally so worded that they cannot be reached under the law. It was for this reason that the present case, along an entirely new line, was undertaken and supported by the San Francisco County Medical Society.

A young man of about twenty came to San Francisco from the country about the middle of July; on July 19 he felt a pain in his back and, seeing the sign of Dr. Taylor & Co., went into the office. He saw Dr. Arberry, who told him, after massaging his prostate, that he had an abscess of the prostate and it would require $200 to cure it. Arberry persuaded the young man to sign a letter to his aunt living in the country, asking that the money be sent to him, care of Dr. Taylor & Co. The money was received and paid. On July 23, Arberry, evidently thinking it a shame not to get some more "easy money," wrote a letter to the young man's aunt telling her to come to San Francisco, that the boy had another serious complaint. She came and first went to see some friends and fellow countrymen (Italians). One of her friends went with her to see Arberry, representing herself as her cousin and interpreter and alleging that she could not speak English—though she really speaks and understands it well. Arberry said to them that the young man had a valvular lesion of the heart and was liable to drop dead at any moment unless treated and cured, which would cost another $200; the treatment was expensive because he had to use a German serum, imported at great expense. The woman stated to Arberry that she did not have the money with her, but would go out and try and get it. That afternoon Arberry was arrested.

Before the heart disease episode and the arrest, the young man happened to see a reputable physician and a member of the county society who soon satisfied himself that the patient did not have and never had had an abscess of the prostate. The same day that the aunt and the interpreter were to see Arberry, the young man was examined by three reputable physicians, one examining the prostate and the other two the heart; they all agreed that he was perfectly well and free from the diseases stated. It was the old swindle, but the interesting and important part of it came out in the trial.

All such cases heretofore have failed because of the defense that the "doctor" had made a mistake in diagnosis and that all physicians may disagree in such matters. But the attorney for the society, Mr. Walter Kaufman, who, though not a criminal lawyer, took a deep interest in the case, believed in the common-sense idea that physicians might testify to certain conditions as matters of fact within their knowledge and not merely as matters of opinion. There was much argument over this point, but the court finally ruled that a witness under oath could testify to matters of fact and that it was then up to the jury to determine the reliability of the tesimony. On this basis the witnesses for the prosecution testified that they had examined the boy and that they knew as a matter of fact that he did not have and had not recently had an abscess of the prostate, and further, that he did not have and had not had a valvular disease of the heart; in the latter point even the "experts" called by the defense agreed that it could be determined as a matter of known fact, whether or not the boy had a valvular disease of the heart. The case went to the jury January 13, and after about two hours' deliberation they returned a verdict of guilty.

This is the first verdict convicting a physician who follows this criminal line of activity, of a felony; that is, of attempting to obtain money by false pretense. It is stated that the advertising quacks in San Francisco have contributed a purse of $25,000 to fight this case and it will undoubtedly be appealed to the Supreme Court. It is also the first time a trial court has admitted to the record testimony from physicians as to the condition of an individual as a matter of known fact and not merely as a matter of opinion. If the judgment shall be eventually sustained it will go far toward getting rid of the very worst type of quack—the licensed physician who has gone wrong.

THE AMERICAN DRUGGISTS SYNDICATE

The following letter from a prominent pharmaceutical manufacturing firm and our reply thereto are printed for the information of those who may be interested:

To the Editor: *Will you send us one hundred copies of the article on the American Druggists Syndicate noted on page 221 of* The Journal, *January 15? Kindly send them with bill and oblige.*

Gentlemen: As we endeavored to make clear in the comment on Dr. Robinson's letter, the American Druggists Syndicate matter was reprinted especially for the use of the individual physician. The Journal takes the attitude that the A. D. S.—as at present operated—is vicious because of its method in manufacturing and exploiting nostrums, *and for no other reason.* For The Journal to sell to one manufacturing concern reprints of an article criticising another firm in the same line of business would be justly a subject for criticism, this too in spite of the fact that the concern making the request might be of the highest standing and actuated by the most altruistic of motives.

In plain English, The Journal holds no brief for any manufacturer—reputable or otherwise—whose business may be injured by the activities of the American Druggists Syndicate.

This being so we are sorry to say that we cannot fill your order.

Correspondence

A Classified Index to Medical Literature

To the Editor:—Readers of The Journal may be interested in and some of them might like to take advantage of the plan of the library of the Morgan County Medical Society for furnishing a classified index to current medical literature.

This plan differs from the exhaustive alphabetic index to medical literature published semiannually by The Journal in that the card form is of great advantage in its expansive and cumulative features which, with its classification by subjects, make it much more accessible for immediate reference. For several years this library has taken thirty of the leading medical journals published in the English language, including all the great weeklies, and has carefully indexed the original articles and clinical notes according to the Dewey system. At first, this was done for the benefit of the members of the Morgan County Medical Society, but others became interested and copies of the index have been made and sold to several neighboring societies. In order to do this work, it has been necessary for the library to employ a trained librarian with headquarters in the library (in the Carnegie Library Building) and ready at all times to assist members and others in using the library and especially to prepare for members reference lists on any subject desired.

The additional copies of this card index amounting to nearly 10,000 cards annually have been furnished at a cost of $125 a year, simply enough to cover the expense. Recently the library has had inquiries from a number of other societies and libraries, who would like to have the index, but the expense is too great. In canvassing this matter, with a printing house it appears that if we could secure fifty or sixty subscribers to the index, we could furnish it (not including the guide-cards which cost two cents each) for about one-half the cost, that is, for $60 a year, or $5 a month. If any of your readers would like to have such an index to recent current medical literature, we would be very glad to have their names and if fifty subscribers can be secured we will undertake the furnishing of this index at $60 a year. It will probably comprise about 10,000 cards arranged with class numbers and by authors so that any subject can be found in its proper class and alphabetically under the name of its author. We find practically that very few things in medical progress fail to get into these journals in the course of the year and while there are some which would come to hand more promptly from foreign journals direct, even these are soon accessible to the reader through the medium of this group of leading medical journals.

As this is a work carried on by the library entirely in the interest of the practitioner for the purpose of enabling him always to be abreast of the times, we take the liberty of making an appeal through the columns of The Journal. This plan is based on the fact that ready access to the best medical journal literature is the surest and simplest way for the practitioner to follow medical progress. We would greatly appreciate correspondence with those interested in a good fresh up-to-date card index.

Library of the Morgan County Medical Society, Jacksonville, Ill.

Miscellany

Origin and Prevalence of Typhoid in District of Columbia.—Rosenau, Lumsden and Kastle, in their third report on typhoid fever in the District of Columbia (*Hygienic Laboratory Bulletin* No. 52, Public Health and Marine-Hospital Service) gives the results of epidemiologic investigations in elaborate tables and charts and also the results of an intensive study of the problem in a selected yet typical district of thirty-two city blocks containing 5,300 persons. During the typhoid season, from May 1 to November 1, every case reported was visited and bacteriological examinations made of the filtered and unfiltered Potomac water, of the excreta, etc. No cases of clinical typhoid were found which had not been diagnosed and reported as such. Dr. L. O. Howard, of the Bureau of Entomology, made a study of fly abundance in relation to the prevalence of typhoid, and but little connection between the typhoid germ and the fly as its disseminator could be made out. The city water supply during the typhoid season according to bacteriologic standards was of good quality, and in the opinion of the investigators could have been responsible for only an insignificant part of the infection. The evidence more strongly suggests personal contact and infected milk as the greatest factors, and in order to further reduce the incidence of typhoid in the District close attention will have to be given these. The solution of the typhoid problem and its suppression will depend on accurate knowledge gained by special studies in endemic areas, rather than by the necessarily hurried studies of acute outbreaks. Though they believe that practically every case of typhoid in the District is diagnosed and reported to the health officer, they deplore the fact that physicians do not fully avail themselves of the facilities of the Hygienic Laboratory for making blood cultures and bacteriologic examinations of the excreta. In about 90 per cent. of patients in the first week of the fever the blood culture test will reveal the typhoid bacillus, usually in pure culture. The intensive study of a selected district included full histories of all cases of illness, specimens from suspected cases of illness and from healthy persons with the view of determining what proportion harbored the typhoid bacilli without having symptoms of the disease. Data were also collected in regard to sanitary conditions, water and milk supplies, etc. The figures show that only 15 per cent boiled the water, 54 per cent. used raw milk, 11 per cent. home heated, 7 per cent. commercially pasteurized, 11 per cent. used condensed milk, and 12 per cent. used milk rarely or not at all. Sixty-eight per cent. of houses were thoroughly screened and 89 per cent. showed a "good" condition as to cleanliness; 4.8 per cent. of the population gave a history of having had typhoid within the past ten years, and in 7 out of 80 specimens examined the *Bacillus typhosus* was found. One hundred and six of the cases were in children under 10 years of age, and this special prevalence among children again suggests the importance of milk and contact in its dissemination. The results of the examination of the excreta of about a thousand apparently healthy persons indicate that the typhoid bacillus is more commonly distributed than the actual number of clinically recognized cases suggests. The results of the three years' study show that the disinfection of excreta is frequently inefficient or neglected, and there is a need of legal control of typhoid fever patients and typhoid bacillus carriers. A vigorous campaign against typhoid as a "contagious" disease and for the prevention of the spread of milk infection would eliminate the greater part of typhoid from the District. Considering the general sanitary condition and the fact that there is no water-borne infection the typhoid fever rate in Washington is excessive.

The Evolution of Man and Its Control.—Roswell H. Johnson (*Popular Science Monthly*, January) says: Man has learned that it is not necessary to depend on natural selection alone for the betterment of the race, but that the work of changing the species is partially under his control. Artificial selection therefore steps in. Though various plans have been suggested, and even adopted in isolated instances, as in the Oneida community, we reach solid ground for the first time when we consider the prevention of breeding from the very worst. The prohibition of marriage within certain degrees of consanguinity is one method of artificial selection which is old as the Mosaic law. Modernly it has been attempted among criminals in our prisons, and in institutions of charity among the insane, the feeble-minded, the epileptic. Those afflicted with syphilis and deaf mutes should of course be excluded from propagation. Natural selection may be trusted to take care of mere weakness and susceptibility to bacterial diseases, and the list of the unfit must vary considerably with scientific advances. But the selection of a method to limit the propagation of the unfit must be governed by considerations of social welfare and individual happiness. The extreme methods of the lethal chamber and Plato's scheme of disposing of defective babies are not in consonance with the respect for life established by society. Castration is too severe for general application, but vasectomy by which sexuality is retained but sterility produced as is employed under statute in Indiana among criminals, though it will be opposed, has much in its favor. The most practical method under present conditions is celibate isolation, not in prisons but in island communities, which would combine effective eugenics with greater humanity and would accelerate social progress to a marvelous extent. Since characters resulting from outside forces, such as alcohol, excessive fatigue, lack of hygiene, scurvy, rickets and other evils of malnutrition can be inherited where the germ plasm itself is affected, much can be accomplished eugenically by the improvement of environment. Sexual selection is an active force in the betterment of the race. It is scarcely possible to attain the ideal working of sexual selection among the most fit. The decline of the birth rate is serious only as it is greatest among the most desirable class. Among the innately inferior the fewer children the better, and among the means of limiting families among them would be the abolishment of child labor and ceasing to treat as illegal the knowledge of the prevention of conception which would be employed more by them and decrease their fecundity and a more reasonable proportion of the fit would be established. The eugenic value of divorce might be employed by extending the grounds for divorce to such things as indicate innate inferiority. But all these measures do not forget the deplorable decline of births among the most fit and efforts should be brought to bear on the enlightened class to recognize the rearing of children as a duty to the race. The eugenicist proposes that laws both state and federal make vital statistics more reliable and comprehensive, and that students of biology study more accurately human heredity according to the laws of Galton and Pearson.

The Food Supply of the Future.—H. P. Armsby (*Science*, Dec. 10), refers to the utterances of James J. Hill (*World's Work*) on the rapid increase in the population and the probable shortage of the wheat supply. He quotes Davenport to the effect that if the ratio of increase of the past hundred years is maintained the end of the present century will see the population of the United States twelve hundred million, and emphasizes the fact that agriculture must be enormously productive to feed them, and that it must be continuously so. No race has ever yet learned to feed itself except at the expense of the fertility of its own or some other country. But with the rapid occupation of all new lands, even in Africa, the problem must be mastered; otherwise there will not be enough of the better foods to go around, *and the diet, which is almost uniform among all* classes, in this country, at least, will have to be changed. Nature in producing food is wasteful of her energy. Sixty per cent. of the energy stored in the wheat crop, and about the same proportion in the corn crop, is in the straw and stover, and practically only 30 per cent. of the energy of the wheat crop is available for human nutrition. So that it will be necessary to utilize more completely the energy of the by-products in the production of available food. While the conversion of the grain into the higher-priced and more marketable products has been in the past and is to a degree still justifiable economically, nevertheless the conversion of corn or other grain into meat is an exceedingly wasteful process, and Jordan computes that in the production of beef or mutton only 2.66 per cent. of the digestible organic matter consumed by the animal is converted into human food, and even in pork it amounts to only 15.5 per cent. So that the economic pressure of population will sooner or later compel the use of corn as human food, or the land must be devoted to other crops which afford more available nutriment and simply use the by-products for the production of meat, which may eventually become a luxury for only the tables of the wealthy.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FORMALDEHYDE POISONING

To the Editor:—In The Journal, Jan. 15, 1910, in the Department of Queries and Minor Notes, appeared an item on "Formaldehyde Poisoning." An article on this subject by Dr. John MacLachlan appeared in the October number of the *Cleveland Medical Journal*. In addition to Dr. MacLachlan's personal case he has collected from the literature ten others and has sketched tl [illegible] of formaldehyde poisoning in more thorough [illegible] previously been done.
E. F. Cushing, [illegible]

ARTICLES ON HOSPITAL CONSTRUCTION

To the Editor:—I [illegible] btaining some information concerning municipal [illegible] iew of starting one which will have a wing for [illegible] Can you refer me to any cities of about 75,000 [illegible] Or can you give me any light on any phase of the subject? I suppose a campaign of education will be necessary here before we will be able to make the public see the need of such an investment and I want material for this campaign.
B. Van Sweringen, Fort Wayne, Ind.

Answer.—In The Journal, Feb. 20, 1909, p. 610, you will find an article by Sturm on "The Planning and Construction of Hospitals for Smaller Cities and Towns," which gives plans and discusses construction, materials, etc. Other articles on hospital construction are found in the issues of Sept. 21, 1907, p. 990 and 993, and March 28, 1908, p. 1025. The *British Medical Journal*, June 20, 1908 (hospital number), contains much information about hospitals, construction, *management*, *taxation* for hospitals, etc. This is briefly abstracted in The Journal, July 18, 1908, p. 261.

Among cities having municipal hospitals are Akron, Ohio, Allentown, Allegheny, Altoona, Harrisburg, Scranton and Williamsport, Pa., Binghamton, N. Y., Columbus, Ohio, Dubuque, Iowa, Omaha, Neb., Indianapolis, Ind., and Lexington, Ky. It is suggested that you might write the authorities in those cities for further information.

GONORRHEA THERAPY ACCORDING TO RICORD AND CHOPART

To the Editor:—On page 42 of "Libertinism and Marriage" (Jullien-Douglas), reference is made to "Chopart's Mixture," and on page 49 "Ricord's old receipt" is mentioned, both used in the treatment of gonorrhea. What are the formulas of these two prescriptions?
B.

Answer.—The formula of Chopart's Potio Balsamica used for the purpose named is as follows:

℞	c.c.		
Syrupi Balsami tolutani			
Balsami copaivæ	āā 50		āā, fl.℥iss
Aquæ menthæ pip	100	or	fl.℥iii
Spiritus (80 per cent.)	50		fl.℥iss
Spiritus aetheris nitrosi	5		fl.ʒiss

M. et Sig.—Teaspoonful 4 times a day.

Because the term "Ricord's old receipt" might be applied to many formulas of Ricord, several of those recorded in *Hager's Handbuch der Pharmaceutischen Praxis* are here given.

℞	gm. or c.c.		
Alumnis			
Acidi Tannici	āā 1		āā, gr. xv
Vini rubri		or	
Aquæ Rosæ	āā 100		āā, fl.℥iii

M. et Sig.: Use 3 times daily as an injection.

℞	gm. or c.c.		
Alumnis	15-45	or	gr. 225-675
Aquæ	100		fl.℥iii

M. et Sig.: Use as an injection (for vagina).

℞	gm. or c.c.		
Bismuthi subnitratis	15	or	gr. 225
Aquæ rosæ	200		fl.℥vi

M. et Sig.: Inject 3 times daily.

℞	gm. or c.c.		
Ferri pulverati	2		gr. iii
Iodi	4	or	gr. vj
Aquæ dest.	50		fl.℥iss
Aquæ dest.	q.s.ad 300		fl.℥x

M. Prepare a solution of the first three and dilute to 300.
Sig.: Use 3 times daily as an injection in blennorrhea.

℞	gm. or c.c.		
Plumbi acetatis	2-3	or	fl.ʒss-i
Aquæ destillatæ	150		fl.℥v

M. et Sig.: Use as an injection.

READING FOR STUDENTS PREPARING TO STUDY MEDICINE

To the Editor:—What does the American Medical Association publish that would be of value and interest to students preparing for medicine? We have several such students and I am desirous of giving them reading matter relative to the profession.
Thomas J. Mackin,
Librarian to Evanston Academy, Northwestern University.

Answer.—The following publications and articles may be found of interest to the prospective medical student.

Principles of Medical Ethics of the American Medical Association.

Minot: Certain Ideals of Medical Education, The Journal, Aug. 14, 1909, p. 502. This issue is the Educational Number of The Journal, containing a description of each medical college in the United States and Canada and giving valuable information concerning courses, entrance requirements, etc.

Dock: Spelling as an Index to the Preparation of the Medical Student, The Journal, April 10, 1909, p. 1176.

Culler, Robert M.: Some Facts About the Army Medical Corps, The Journal, April 3, 1909, p. 1902.

Bristow: The Unity of the Medical Sciences, The Journal, March 13, 1909, p. 843.

Keen: Educational Ideals in Medicine, The Journal, June 26, 1909, p. 2081.

Adams: The Great American Fraud, The Nostrum Evil, Quacks and Quackery. Reprinted from *Collier's Weekly* by the American Medical Association.

A list of books on medicine from the historical point of view will be found in Queries and Minor Notes, *The Journal*, May 8, 1909, p. 1517.

We also mention the following books and some articles from other periodicals. If they are not accessible in a library, copies can be obtained from the publications or publishers named.

Lawbaugh: The Physician, his Duties and Relation to the Profession, *Journal of the Michigan State Medical Society*, Detroit, October, 1909.

The Practice of Medicine as a Career, The Army and Navy Medical Service (and a number of other articles of interest to the student), *Medical Record*, New York, April 24, 1909.

The Third Annual Report of the Carnegie Foundation, Washington, D. C., discusses medicine as a business, medicine as a profession, ideals of the profession, etc.

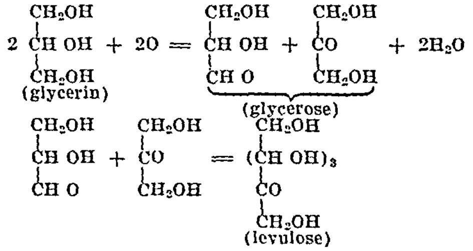
McWhorter: Relation of Medicine to Other Professions, *Alabama Med. Jour.*, Birmingham, May, 1909.

Cathell: The Physician Himself, The F. A. Davis Co., 1914 Cherry St., Philadelphia.

LABORATORY MANUFACTURE OF SUGAR FROM PROTEIN AND FATS

To the Editor:—Please tell me when and by whom sugar was first made from proteins and fats in the laboratory. I remember having read that it was done by Emil Fischer, but cannot find the reference. S. H.

ANSWER.—It is necessary to distinguish between the cleavage of a sugar radical out of a complex protein in which the sugar exists already formed, and a formation of sugar from a protein in which there is no preformed carbohydrate, since the principles involved and the significance of the operation for our understanding of carbohydrate metabolism, are entirely different. The demonstration of carbohydrate radicals in complex proteins is credited to Eichwald by Cohnheim and Mann ("Chemistry of the Proteids"); he discovered a carbohydrate in mucin in 1865. Many years before, however, Berzelius concluded that albumins must contain carbohydrate radicals because upon decomposition of proteins and sugars he obtained certain products in common from each, including oxalic and saccharic acids and furfurol. Recent activity in this direction dates from Pavy's discovery in 1894 that a hexose could be obtained from egg albumin. The formation of sugar directly from a protein which does not already contain preformed carbohydrates has never been accomplished in the laboratory, although there is clinical and experimental evidence in favor of the view that such a process may be accomplished by the living tissues. It is theoretically possible to construct a sugar from the amino acids derived from the disintegration of the protein molecule, some of which stand in rather close chemical relation to the carbohydrates, but the actual performance of the task of producing sugar by going through all the steps from protein to carbohydrate has never been recorded. Likewise, there is no record of an actual formation of sugar from a fat in the laboratory, although various of the necessary steps have been demonstrated. The glycerol (glycerin) radical of the fats is especially closely related to the sugars, and the reactions by which it may be converted into sugar are indicated by the following equations from Wells' "Chemical Pathology," p. 524:



$$2\underset{\text{(glycerin)}}{\begin{array}{l}CH_2OH\\ |\\ CH\,OH\\ |\\ CH_2OH\end{array}} + 2O = \underbrace{\begin{array}{l}CH_2OH\\ |\\ CH\,OH\\ |\\ CH\,O\end{array} + \begin{array}{l}CH_2OH\\ |\\ CO\\ |\\ CH_2OH\end{array}}_{\text{(glycerose)}} + 2H_2O$$

$$\begin{array}{l}CH_2OH\\ |\\ CH\,OH\\ |\\ CH\,O\end{array} + \begin{array}{l}CH_2OH\\ |\\ CO\\ |\\ CH_2OH\end{array} = \underset{\text{(levulose)}}{\begin{array}{l}CH_2OH\\ |\\ (CH\,OH)_3\\ |\\ CO\\ |\\ CH_2OH\end{array}}$$

Emil Fischer's synthesis of proteids was described in THE JOURNAL, March 3, 1906, page 636.

The Public Service

Medical Department of the Army

Changes for the week ended Jan. 22, 1910.

Hughes, Michael E., 1st lieut., M. R. C., ordered to Benicia Arsenal, Benicia, Cal., for duty.

Talbott, Edward M., capt., leave of absence extended 2 months.

Hughes, Michael E., 1st lieut., M. R. C., granted leave of absence to March 1, 1910.

Norris, H. C. R., 1st lieut., ordered to Fort Worden, Wash., for temporary duty.

Waterhouse, Samuel M., major, on expiration of his present leave of absence ordered to Fort Washington, Md., for duty.

Oliver, Robert T., examining and supervising dental surgeon, is designated to conduct an examination commencing Monday, March 7, 1910, at Fort Slocum, N. Y., of such applicants for employment as dental surgeons in the Army as may be authorized by the Surgeon-General of the Army to present themselves for examination.

Tetrault, Charles A., M. R. C., granted leave of absence for 4 months, to take effect on relief from duty in the Philippines Division, with permission to go beyond the sea.

Morris, Samuel J., capt., granted 30 days leave of absence.

Carter, Edward C., lieut. col., sick leave of absence further extended 1 month and 6 days.

Wickline, Wm. A., capt., granted 30 days' leave of absence.

Whitmore, Eugene R., capt., granted leave of absence for 4 months, to take effect on his relief from duty in the Philippines Division, with permission to go beyond the sea.

Coburn, Henry C., Jr., lieut., granted leave of absence for 28 days.

Kean, Jefferson R., lieut. col.; Russell, Frederick F., major, appointed members of a board of officers to proceed to Fort Sheridan, Ill., for the purpose of investigating the water supply and disposal of sewage at that post.

Reynolds, F. P., major, left Fort Monroe, Va., on 7 days' leave of absence.

Hanner, John W., capt, granted leave of absence for 1 month and 10 days.

Clayton, George R., 1st lieut., M. R. C., relieved from duty at Fort D. A. Russell, Wyo., and ordered to Fort Sheridan, Ill., for duty.

Thorne, James I., 1st lieut., M. R. C., honorably discharged from the service of the United States, to take effect Jan. 21, 1910.

Public Health and Marine-Hospital Service

Changes for the week ended Jan. 19, 1910:

Kerr, John W., asst. surgeon-general, reassigned to duty in the Bureau as Assistant Surgeon-General in charge of the Division of Scientific Research, effective Dec. 18, 1909.

Carmichael, D. A., surgeon, reassigned to duty at Buffalo, N. Y., effective Dec. 13, 1909.

White, Joseph H., surgeon, reassigned to duty at New Orleans, effective Dec. 1, 1909.

Lavinder, C. H., P. A. surgeon, detailed to represent the Service at the annual meeting of the Medical Society of New York, to be held in Albany, Jan. 25-26, 1910.

Earle, B. H., P. A. surgeon, leave of absence granted 15 days from Dec. 24, 1909, amended to read 2 days from Dec. 24, 1909.

Wood, C. E., asst.-surgeon, granted 21 days' leave of absence from Jan. 11, 1910.

Leake, James P., asst.-surgeon, granted 3 days' leave of absence from Jan. 12, 1910, on account of sickness.

Stiles, C. W., chief Division of Zoology, Hygienic Laboratory, detailed to represent the Service at a conference on hookworm disease, to be held in Atlanta, Ga., under the auspices of the State Board of Health, Jan. 18-19, 1910.

Bailey, C. A., acting asst.-surgeon, leave granted for 2 days from Jan. 3, 1910, amended to read 2 days from Jan. 1, 1910.

Blount, B. B., acting asst.-surgeon, granted 30 days' leave of absence from Feb. 1, 1910.

Delgado, J. M., acting asst.-surgeon, granted 2 days' extension of annual leave from Jan. 1, 1910, on account of sickness.

Gibson, L. P., acting asst.-surgeon, granted 4 days' leave of absence from Jan. 12, 1910.

Hunter, S. B., acting asst.-surgeon, granted 30 days' extension of annual leave from Dec. 1, 1909, on account of sickness.

Moorer, M. P., acting asst.-surgeon, granted 5 days' leave of absence from Jan. 15, 1910.

Onuf, B., acting asst.-surgeon, granted 5 days' extension of annual leave from January 6, 1910, on account of sickness.

Tarbell, B. C., acting asst.-surgeon, granted 30 days' extension of annual leave from Oct. 14, 1909, on account of sickness.

BOARD CONVENED

Board of medical officers convened to meet at the bureau, Jan. 24, 1910, for the examination of candidates for admission to the Service. Detail for the board: Surgeon G. B. Young, chairman; Surgeon Wm. G. Stimpson; Passed Assistant Surgeon John D. Long, recorder.

Society Proceedings

HOOKWORM CONFERENCE

First Southern Health Conference, held in Atlanta, Ga., Jan. 18-19, 1910

The first conference for the purpose of discussing the various aspects of uncinariasis was held in Atlanta, Ga., January 18 and 19, under the auspices of the Atlanta Chamber of Commerce and the Georgia State Board of Health. The conference was called to order by Mr. J. F. Paxton, president of the Atlanta Chamber of Commerce, who extended a hearty welcome to the delegates present, and said that the meeting was fraught with tremendous significance to the South.

Dr. H. F. Harris, secretary of the Georgia State Board of Health, was chosen temporary chairman and William Whitford, Chicago, official reporter for the conference, and representing THE JOURNAL of the American Medical Association, acted as temporary secretary, pending the formation of a permanent organization.

There were five hundred in attendance, representing eighteen states. Unusual interest was shown in the proceedings.

History and Zoologic Aspect of the Hookworm Disease

DR. CHARLES WARDELL STILES, Washington, D. C.: The earliest hookworms ever known were described in 1782 by a German clergyman—Goeze, who gave to them the German name *Haaken wurm.* A few years later, another German scientist found numbers of the same group of parasites, and he Latinized the expression, using the term "uncinaria." In 1837, Dubini in performing an autopsy in Milan found in a cadaver a peculiar parasite with which he was not familiar. This parasite could not be traced among the parasites of man, and proved to be a new species, which he called "*Ankylostoma duodenale.*" That was the first hookworm ever found in any human being, or, at least, ever described as having been found in any human being, and this hookworm is to-day known as the Old World hookworm. A few years later, however, it was noticed that this parasite was common in Egypt, and a parasite supposed to be the same was found in Brazil. In Brazil it was observed that this worm produced serious disease, and it is to the Brazilian physicians that we really owe our first knowledge of the clinical side of hookworm disease. In 1879, an outbreak of the disease occurred among the miners of the St. Gothard tunnel and this epidemic was known as the St. Gothard tunnel anemia or epidemic, and it was demonstrated by several Italian zoologists—Grassi, Perroncito, and others—that this epidemic was due to the hookworm which Dubini had found in Milan in 1843. It was during this epidemic that these Italian physicians began to experiment with treatment. The Brazilian physicians had already treated many cases in Brazil, but their treatment was practically unknown in other parts of the world. The Italians commenced treatment with male fern, and Bozzolo suggested the use of thymol. This is the origin of the use of thymol in connection with hookworm disease. It was found that the thymol treatment was very useful against any number or group of hookworms then known, although it was first used only against the hookworm of the old world, as found in man. In works on practice of medicine published as late as 1900, or thereabouts, this disease was given only three or four lines. Despite the fact that many Italians had come from Europe to the United States as immigrants, and that the disease had extended from Italy down the Rhine, as far as Belgium, several cases were recognized from the United States. The first man to recognized the egg of hookworms in this country was Dr. Harris. It is a matter of great regret to me that Dr. Harris did not publish that observation. He was not only the first man to recognize the eggs of hookworms in this country, but the first to interpret the conditions correctly. He was the first Southerner to recognize the widespread prevalence and the great importance of this disease. Up to about 1900 there were about 30 cases of hookworm disease diagnosed in different parts of the United States. In some of these it was recognized that the disease was imported from Europe. In other cases there was no explanation of the origin of the infection.

The first cases of infection with the American species of hookworm which were found were the following: One case observed by Dr. Clayter in a patient from Westmoreland county, Virginia; one case in Galveston, Texas, observed by Dr. Allen J. Smith; several cases in Florida, which were handled by Dr. Guiteras.

In about ten days after my first report appeared notifying the medical profession that this disease was common in the Southern states, Dr. Harris came forward with the statement that hookworm disease was the most common of the infectious diseases in the South. This statement dumbfounded me, and I thought that he had exaggerated matters, but later found that his statements were fully confirmed. It was soon found that the cases in America were due almost exclusively to this newly found parasite, which was named *Necatur americanus*, the American murderer. The distribution of the parasite is rather interesting. During the last week, on the spur of the moment a clerk in my office during a period of six days collected from correspondence 6,858 cases. The infection is heaviest or greatest along the sand area. The next heaviest infection occurs in the Appalachian region, and in general the Clay land region and the sand belt region are less infected. Cases are found in other parts of the country. For instance we found a group of cases in New York State, all the individuals being United States soldiers who enlisted in the southern states. Two patients were from Connecticut. I was unable to find the origin of these cases, not knowing where the infection came from. There are a few cases in Chicago, and others which have come to us chiefly from the Philippines. According to this map we have also some cases in southern California.

I have examined personally about 130 cotton mills in the South, and 8 milling camps, and in many instances men, women and children in these mills infected with this disease have it to such an extent that the diagnosis can be made without the aid of the microscope. One out of every 8 of the cotton mill employees of the Southern states, if we accept the 130 cotton mills as a basis, has hookworm disease to such an extent that neither Dr. Harris nor I would think of taking the trouble to make an examination with the microscope. The distribution of the disease coincides very well with the distribution of what one might call the efficiency of the cotton mill labor. If one enters a Piedmont mill he will see that the laborer is distinctly more efficient than in a mountain mill, or a sand land mill. In the sand land mills the infection among the employees runs up to as high as 50, 60, or nearly 70 per cent. in the men, women and children employed while in some of the Atlanta mills the infection drops to per cent., or 0 per cent., due to the fact that in Atlanta people are in a clay belt, and under good sanitary conditions

The frequency of this disease in the southern states i simply a zoologic problem. The population in this countr consists of four different races of mankind—the white, yellow black and red. Different races of men have different diseases and when the races are brought together they trade diseases The white man has brought to the southern states tuberculosis, and has presented it to the negro, and we all know th results. The death-rate from tuberculosis among negroes i three times as great as among the whites. Hookworm disease as found in the United States has been traced to th west coast of Africa, and as far as the pigmies of Africa Unquestionably the negroes must have brought many hookworms to this country. It is an academic question whether the Indians in this country had the disease before the white people came here. The negroes must have brought many cases of infection with them, and the distribution of the disease in the United States at present must correspond with the distribution of people who in earlier days came in contact with negroes. We have in hookworm disease an African disease, which has been transmitted to the whites. The negroes having had the disease for generations do not suffer so much from the infection as do white people. As a result they are carriers of the infection, and of necessity there is a greater amount of this disease in localities where there is in the aggregate a greater negro population. Seventy-nine per cent. of the negro farm houses which I have examined and tabulated in North Carolina, South Carolina, Georgia, Alabama, and Mississippi, have no privy connected with them. Practicaly 80 per cent. of the negroes in the rural districts of the South are living under sanitary conditions which are not one iota better than those described for the savage tribes of Africa; and 46 per cent. of the white farm houses I have examined are in no better condition. The distribution of the disease is a natural result of our large negro population, of the insanitary habits of the people, of the character of the soil and shade and climate. There is probably no disease known in the medical calendar which is more easily diagnosed, more easily treated, and more easily prevented than hookworm disease.

Excessive Waste of American Life; How Life Insurance Companies Could Assist in Checking It

HON. E. E. RITTENHOUSE, New York: This parasite is now sapping the blood and blasting the lives of hundreds of thousands of people. It is causing mental and physical degeneracy and industrial inefficiency; to many of its victims it brings not only physical suffering, but misery and distress from the poverty which it breeds. And to this must be added the grief and sorrow that follows the steady march to the grave of those who pay the final penalty for their ignorance of the true cause of their affliction.

Popular interest in health preservation has developed enormously in recent years. Healthful exercise, the out-door life and right living have become subjects of lively public interest. Health preservation, in one form or another, is a topic of frequent discussion in the public prints of the country. The death-rate from typhoid, another communicable disease, the conquering of which is largely a question of sanitation, has been reduced 54 per cent. since 1880. And still about 22,000 people die annually from this disease. The diphtheria death-rate has been reduced 80 per cent. since 1880. A large portion of this decrease is directly due to the use of antitoxin, which was first introduced in 1895; but still about 20,000 lives are annually lost from this malady. Certainly this record justifies the belief that similar results will follow a systematic and permanent campaign against the hookworm.

Every hour 72 Americans die from preventable causes. Every day, lives are needlessly destroyed which equal the population of a town of over 1,700 souls. Every year the sacrifice through ignorance and neglect equals a population of a city like Baltimore or St. Louis.

These estimates are based on the information and opinions gathered by Prof. Irving Fisher, of Yale University, which are found with his conclusions, in his recent report to the National Conservation Commission of which he is a member. Prof. Fisher, who is also president of the Committee of One Hundred on National Health, has made a very careful and exhaustive study of mortality from preventable diseases, and I believe his estimates are conservative. Let us suppose that the 2,000,000 people who it is estimated are suffering in a greater or less degree from the hook-worm parasite were concentrated in one city instead of being distributed throughout 8 or 9 states. Then these afflicted citizens would be under closer public observation, and the daily death-rate and the daily list of the sick would be a matter of public knowledge.

In Massachusetts, where the statistics are regarded as reliable and the only state where the information was available, I find that the death-rate since 1880 has decreased during ages under 5, 25.4 per cent.; ages 5 to 9, 52.4 per cent.; ages 10 to 14, 21.3 per cent.; ages 15 to 19, 37.1 per cent.; ages 20 to 29, 41 per cent.; ages 30 to 39, 15 per cent. This decline is doubtless practically the same throughout the country. This reduction in the death-rate up to middle life is perhaps to be expected because the diseases against which we have been warring are to a large extent confined to children and early adult life. The increase in the mortality rate from kidney disease since 1880, in Chicago, has been 167 per cent.; in Connecticut, 139 per cent.; from heart disease in Massachusetts, 105 per cent.; from apoplexy in the same state, 135 per cent. The increase from cancer in Philadelphia has been 79 per cent.; from pneumonia, in Chicago, 35 per cent.

With the possible exception of cancer, all these and many other diseases which are common to middle life and old age are, in a great measure, preventable or postponable, if proper methods of living are followed. In fact, most of these diseases may be cured or their development greatly retarded if they are discovered and given attention in their early stages. And it is also true that these diseases cause far more deaths than those of the more common communicable class to which we have referred; and yet, these non-communicable diseases in the preventable class are not among those against which the popular war is being waged. The sinews of war to carry on an organized campaign to conserve human life must come from two sources—private contributions and public taxes.

Owing to the attention already attracted to the ravages of the hookworm by Dr. Stiles, Dr. H. F. Harris and other medical men and laymen, the urgency of the situation has already been impressed on at least one who is able to make a liberal contribution. It is to be hoped that the generous offering of Mr. Rockefeller will be followed by others of equally liberal proportions. Experience has shown that a medical department bulletin couched in language that can be readily understood, and bearing a dignified and cheerful tone, is not only read, but carefully studied by a large number of policy holders.

If a campaign along these lines were inaugurated among the vast body of insured people it would indirectly exercise a most beneficial influence on those with whom the policy holders come in contact, and benefit the public in general. But it should not be a temporary or spasmodic attempt. To be of value it must be permanent, and it is not difficult to see wherein such a campaign would render valuable assistance in the war upon the hookworm in these coast states. Such a movement on the part of the life-insurance companies would benefit the medical examiner, the family physician, the company and the policy holder. There is not a negative or an antagonistic factor in it. The fact that it has never been tried before is no argument against it. Its cost is not excessive. It is legal; it is just; it is humane, and it would add a new and valuable feature to life insurance.

Nothing can possibly be of more value to a nation than the lives of those who compose it. To use every possible means to prevent the needless destruction of these lives is not only a proper function of the government, but a most imperative and solemn duty of government. Our people, through their lawmakers, have recognized this duty only to a limited extent. They have provided health boards and bureaus—local and national—to assist in protecting human life against one class of preventable diseases; that is, those which may be communicated. But, as already indicated, the deaths they have succeeded in preventing are but a fraction of the enormous number occurring annually from some of these same communicable diseases.

The public health measures and the general war against disease are supposed to be more efficiently and effectively prosecuted in Greater New York than in any other large American city. The cost of governing that city last year was $148,447,000, and all it could afford to spend on the health department was 1.6 per cent. of that amount, and during that year the city lost 33,200 people from ordinary preventable diseases. It may also be interesting to know that in 148 cities of the United States, during the year 1907, the ratio of health department expense to the total government expense was 1.8 per cent. In the same cities the ratio of expense for police and fire departments combined was 23 per cent. From this an idea may be gained of the very slight importance placed on the conservation of human life by the public in our great cities. In Greater New York $8,000,000 is spent on the fire department, and the fire loss was $9,400,000; and for the public health department $2,418,499 was spent, while the value of the lives lost from preventable disease, using Professor Fisher's estimate as $1,700 as the producing value of a life, was $56,550,000. Compared with former years, the appropriation was liberal, but notwithstanding the relatively small and wholly insufficient provision for the conservation of public health in New York City during recent years, owing to the efficiency of the Health Department, and the work of the unofficial organizations, the death-rate from tuberculosis since 1880 has decreased 41 per cent.; from typhoid fever, 32 per cent.; from diphtheria 81 per cent.; while the mortality from diseases that were not combated increased rapidly—kidney disease, 73 per cent.; heart disease, 84 per cent.; apoplexy, 34 per cent.; pneumonia, 24 per cent.; and from spinal meningitis, 60 per cent.—during the same period. In spite of these increases the saving of the younger lives has been so great as to reduce the general average death rate in that city 33 per cent. during the same period.

If we agree with former President Roosevelt, that the health of our citizens is the greatest asset of the nation, our health departments—municipal, state and national—should be regarded as an extremely important branch of the public service. But ample evidence that they are not so regarded by the public is found in the fact that in many cities and states the health departments are provided for in a miserly way, with the natural result that the duties are often performed in an indifferent and perfunctory manner. In discussing this phase of the question, I do so not as the president of a life insurance company but as an ex-state official who served about four years at the head of the Colorado insurance department, and I know that it is often much easier to get appropriations for the protection of domestic animals, wild game, fruit trees and forests, than it is for the protection of the public health. If any state enjoys popular government, Colorado is that state, and the people are as intelligent, progressive, and patriotic as in any state in the Union; and yet, the appropriation for the fish and game department has been far in excess of that for the combined bureaus which look after the public health, and the same lack of interest is found in virtually all states.

No department should show more activity and energy than a health department; it should be organized on scientific lines, presided over by scientific men, and provided with a publicity bureau and a large and efficient corps of medical examiners and inspectors, and their work should be conducted on a scale consistent with the amount of life waste they are to combat. Citizens who desire it should be given a free medical examination, and in some instances of infection it should be compulsory. It is not only necessary to tell a man how to avoid danger, but he should be told when he is in danger. Accidents seldom happen at railway crossings where, in addition to a danger sign, a watchman is maintained.

We all glory in the marvelous growth of educational institutions, and I would be the last to minimize their importance, but when we consider the needless suffering and sacrifice of human life that is now going on, it seems that education is now getting more than its share. The higher education is most desirable, but live Americans are of more importance than dead languages. We are not suffering for want of schools, but our nation is suffering from life waste of one billion and a half annually in dollars alone, which is the estimated productive value of the lives unnecessarily destroyed. If practical and permanent assistance along the lines indicated is forthcoming from public and private sources, how to live a healthful life; how to guard against and detect disease, will, in the course of time, become matters of common knowledge among our people. A higher standard of life would result and the uplift would be a moral as well as a physical one, for to war against disease and wrong living is to war against poverty, immorality and crime.

Pathology of Uncinariasis

Dr. Newton Evans, Nashville: Careful distinction must be made between the findings in the severe cases, which often result fatally, and the findings in cases which are accompanied by very mild symptoms, which are difficult to recognize or in which there are no symptoms except the presence of eggs and worms in the feces and usually increased eosinophils in the blood. In 64 cases reported by Chamberlain, all light and without symptoms, the hemoglobin varied from 80 to 91.5 per cent. In 62 cases of mild infection reported by Bass, the hemoglobin percentage averaged 90. The red cell count averaged 5,125,000 in these cases. In 5 cases of light infection in children suffering with pellagra, whom I have examined, the hemoglobin averaged 93 per cent. In Ashford's 19 severe cases in Porto Rico, the hemoglobin varied from 10 to 55 per cent. Leonard in Island of Grenada reported 20 cases. Both ankylostoma duodenale and uncinaria americana were present, the majority of cases showing the ankylostoma. Hemoglobin varied from 8 to 40 per cent. Colbert in Porto Rico reported 5,000 cases. The hemoglobin average was 44.1 per cent. Ashford and King in Porto Rico in 579 cases selected at random found that the hemoglobin averaged 43.09 per cent., running as low as 8 per cent. Capps reported one fatal case from Panama, in which the hemoglobin decreased from 18 to 11 per cent. at the time of death. Harris reported 1 case in which the hemoglobin was 20 per cent. The red cell count is not given in any series of mild cases except in that of Bass, in 62 cases.

In the severe cases there is a decided reduction of red cells. Chamberlain in 12 mild cases, in which the leucocyte count was made, gives the white cells from 12,700 to 7,600—average 9,600. Ashford, in 19 severe cases, gives from 1,500 to 18,000, average 7,800. Leonard in 20 cases found no leucocytosis present. The cases of Ashford and King averaged on admission 8,009. In Harris' 1 case the count was 4,020. In some of the most severe cases a decided leukopenia rather than leucocytosis is present. In the differential count of white cells apparently the only important abnormality occurs in the number of eosinophils. Eosinophilia is almost a constant finding, and practically all observers are agreed that the degree of eosinophilia is not an index of the severity or amount of infection. Ashford and King conclude that eosinophilia is liable to be absent in the more serious cases. They give their conclusions in the following words: "Eosinophilia is the chief feature of importance. It is strange that Boycott and Haldane lay so much stress on the importance of eosinophilia from a diagnostic point of view, for in the more serious cases it is liable to be absent. In 1904, we called especial attention to our belief that eosinophilia was of great prognostic importance and have noticed that some German and Spanish writers have expressed the same view. Very chronic cases, of severe type, poor resisting power, and the lack of blood regeneration, rarely show eosinophilia, or, if at all, only a slight degree. A rise in eosinophilia is of great prognostic significance and their fall, with lack of improvement in symptoms, is not a good omen. In general, good resistance to the hypothetical toxin of uncinaria is expressed by eosinophilia."

Several writers emphasize the point of great resemblance between the blood findings in the severe types of uncinariasis and true primary pernicious anemia. In the case of Capps which resulted fatally, as the severity of the symptoms increased the blood showed at first typical secondary anemia, which gradually changed to a picture closely resembling that of pernicious anemia. However, Ashford and King give the average hemoglobin index in the severe cases as only 0.5; but 3 out of 19 of Ashford's blood counts gave an index of 1.0 or above. Among other changes in the blood characteristics of severe anemia may be mentioned the presence of erythroblasts which, however, are usually rather scanty, and this is especially true of the megaloblasts. In this respect the blood differs from the usual forms of primary anemia.

Poikilocytosis and polychromatophilia are present typically in the severe cases. One of the most remarkable features of hookworm disease is the complete lack of agreement between the severity of symptoms and lesions including the blood changes, and the number of worms found in the intestine. This is shown graphically by Sandwith's post-mortem findings (all in cases of anklyostomiasis) in which in 26 fatal cases the maximum number of worms found on autopsy was 863. In 6 out of 18 of these fatal cases (in all of which the patients had received no treatment to dislodge the worm) there were less than 10 worms in each case and in 2 cases there was only one worm in each. These facts lead to the almost inevitable conclusion that the cause of the anemia and its resultant symptoms is not the direct loss of blood, but is rather due to a toxemia caused by some poison generated by the parasite, to which the organism in the cases in which the patients die with only a few worms present, must become unusually susceptible.

The observers who have seen large numbers of the severe cases and individuals harboring great numbers of the parasite conclude that there is little relation between the number of worms and the severity of symptoms, and agree that the hookworm does not cause its symptoms by its blood-sucking propensities but by some as yet unknown toxin.

I have studied reports of 17 complete autopsies in American cases: Ashford and King, 12, in Porto Rico; Leonard, 4, Island of Grenada; Capps, 1, Chicago from Panama. These can be compared with the findings of Sandwith in 26 autopsies in cases of anklyostomiasis.

There is practically always edema with marked dropsy of the lower extremities, some abdominal ascites, serous effusions in other serous cavities and considerable general anasarca. The bodies usually appear fairly well-nourished, and in adults there is well-developed muscularity; intense pallor of the skin and other tissues is marked. The subcutaneous and other fat of the body is well preserved, of normal amount and of light yellow color. This absence of emaciation and preservation of normal amount of fat is in contrast to the findings of Sandwith in the ankylostoma cases, in which the muscles were wasted and there was usually decided absence of fat. Chamberlain, in comparing the weights of northern and southern recruits, found a difference in favor of the northern recruits, also there is a difference in favor of the non-infected southern recruits over the infected southern recruits. The muscular tissue, according to Ashford and King, is brownish gray in color, friable and often atrophied and microscopically the muscle fibers are fragmented and protoplasm reduced in amount.

The habitation of the worms is usually confined to the upper part of the jejunum and a certain number are found in the duodenum. In a few cases they have been found in the ileum, but never in the colon. Ashford and King describe their occurrence in the stomach in several cases, both attached to the mucous membrane and unattached. In practically all cases there is a mucous gastritis, sometimes extreme. Ashford and King report two cases and Leonard two cases of gastric dilatation. The duodenum and particularly the jejunum are the seat of a severe catarrhal process which also affects to a degree the other portions of the intestines. There is a large amount of mucus in the intestinal canal in which the worms are imbedded and which is often blood-stained in places. The lesions of the intestine are confined to the mucosa and there is often degeneration and atrophy of the intestinal and gastric mucous membrane. At the point of attachment of the worms there is a tiny erosion, superficial, not deep, and about one-half millimeter in diameter. This erosion is usually not surrounded by any discoloration and is difficult to locate with the naked eye. Leonard says that the mucous membrane showed minute hemorrhagic spots, but a majority of his cases were of the ankylostoma type. These minute superficial erosions are in marked contrast to the lesions described by Sandwith in the cases of ankylostomiasis, in which there are numerous petechial hemorrhages marking the bites of the worm and some of the worms are found imbedded for half the length of their bodies in the thickened mucosa, and those so attached are surrounded by much bloody mucus. Ashford and King express the opinion that the food of the uncinaria is the epithelial cells of the mucosa and that it is not a blood-sucker. In not 5 cases in 10,000 was there sufficient blood in the feces to be discovered by the microscope. McNabb at Knoxville says that in every case he finds blood in the stools by the guaiac or the benzidin test. In my 8 cases, all light infections, 2 were positive to the benzidin test. Stiles says that 80 per cent. of the severe and medium severe cases will react to his blotting paper test for blood. The large number of worms removed by anthelmintic in any one case as reported (Colbert) is 4,872. The proportion of males to females of the parasites as found at autopsy by Capps was one male to four females. Sandwith in 50 cases gives the proportion in the ankylostoma infection as 56 per cent. males and 44 per cent. females. Whether the proportion as reported by Capps is the usual one in uncinariasis, I do not know.

The most pronounced change in the liver is fatty degeneration. Ashford and King state that the changes in the spleen are definite and characteristic. It is decreased in size, soft and has a wrinkled capsule. Microscopically, the 8 cases examined invariably showed a decided paucity of lymphoid elements, and even a decrease in the size of the lymphoid cells. The Malpighian corpuscles were greatly reduced in size and in cellular content. The increase of connective tissue was only relative and apparent. Capps reported a large spleen with interstitial hyperplasia. This was possibly malarial in origin. Leonard says that the spleen was normal in 2 of his 4 cases, and enlarged in 2, the enlargement probably being due to malaria.

Ashford and King report that practically all fatal cases show a chronic parenchymatous or diffuse non-indurative nephritis. The kidneys are invariably pale and usually slightly enlarged. In the older patients there was a slight increase in connective tissue. Microscopically the changes were most marked in the convoluted tubules, where there was fatty degeneration and desquamation of epithelium. There were exudates of serum and blood into the interstitial tissue and Bowman's capsules, and bloody and epithelial casts in the tubules. Their findings in the urine of the severe cases correspond well with these post-mortem lesions. Twenty in 24 cases had small trace of albumin before any anthelmintic treatment; 18 of the 24 had casts, hyaline and granular, no bloody casts and few epithelial.

The only constant changes seen in the lungs are the extreme pallor, as in all the other organs, and in almost all cases a pulmonary edema, as shown by the dripping of fluid from the cut surface. Many cases show signs of passive congestion, probably due to incompetency of the mitral valve. Every case is reported to have had a greater or less degree of pleuritic effusion, clear and yellow in color.

Sandwith says that there was a cardiac hypertrophy in 10 of his 26 cases. The American observers also report cardiac hypertrophy in several cases and dilatation dependent on fatty degeneration in many. The muscle was frequently flabby and a functional incompetency of the valves was present. Ashford and King say that there is frequently an increase in the pericardial fat. In all cases a considerable amount of serous effusion is present in the pericardial cavity. Microscopically they report in two or three cases distinct brown atrophy, and in two cases extensive fatty degeneration.

About the only constant lesions described in the brain are intense anemia and an effusion into the ventricles of a clear, pale, yellow fluid.

The marrow of the shafts of the long bones usually has undergone changes somewhat similar to those in pernicious anemia, although Capps in the description of his case says that the marrow of the femur was extremely yellow and fatty. "At two points it had a reddish color, but was even here practically all fat."

Ashford and King lay great stress on changes in hemolymph glands. In two cases in which search was made numerous hemolymph glands of considerably larger size than the normal type were found in the region of the abdominal aorta. Most of these were of the spleno-lymph variety.

The etiologic relationship of the so-called ground itch to uncinariasis can be considered to be proved beyond any reasonable doubt. In 1901 Loos first showed experimentally that the larvæ of ankylostoma enter the skin through the hair follicles and penetrate the deeper tissues. This entrance has been repeatedly demonstrated since. All the descriptions of the symptoms, lesions and sequence of events in ground-itch either accidental or experimental in origin are in perfect accord, and have been accurately described by Ashford and King and by Claude Smith. According to Ashford and King the exposure of the skin to the larvæ causes the following symptoms: 1. Itching within a very short time. 2. Followed by redness and swelling of part. 3. In two days papules appear. 4. These rapidly change to vesicles, discrete or often confluent, which later usually rupture. 5. Frequently followed by pustules, but in favorable cases pustules do not form. 6. In case pustules do not form the vesicles soon begin to dry up and crusts are formed and in the milder cases not forming pustules, the lesion completely subsides in a week or two. 7. In the more severe cases, in which the symptoms are probably due to secondary pyogenic infection, extensive and deep ulcers form, which sometimes respond well to treatment but often are very resistant.

Claude Smith has shown that a toxin may be extracted from the larvæ by alcohol which will produce the itching and other changes of ground itch but in a milder form. Colbert reports that in 5,000 cases of uncinaria 4,956 gave a typical history of one or more preceding attacks of ground itch. Ashford and King say that 96 per cent. of 12,000 gave such history.

(To be continued)

CITY OF WASHINGTON BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Regular Meeting, Held Jan. 5, 1910

The Pharmacopeia of the United States

Mr. George M. Beringer, in calling attention to the report of the American Pharmaceutical Association committee on the U. S. Pharmacopeia, pointed out that this report represented the individual views of the ten members of that committee, and that no attempt had been made to harmonize the views of the several members. In regard to the scope of the book, he called attention to the views of one of the members of the committee who believe that the Pharmacopeia should be a medium of communication between physicians and pharmacists and should represent as nearly as possible the present-day needs and practices of representative medical men. On the matter of nomenclature, Mr. Beringer expressed the opinion that the contraction of the chemical names for synthetic remedies has been criticised, though it is probably the best that can be done at the present time. The Latin titles should be as nearly correct as possible and the Pharmacopeia should contain a comprehensive list of synonyms. Among the more desirable features that should be added to the Pharmacopeia, he said, are: Working methods for determining physical and chemical constants, working methods for sterilizing official substances, and the harmonizing of tests so as to make them applicable by the retail druggist.

PROF. HENRY KRAEMER discussed the importance of pharmacognosy in connection with Pharmacopeial work and pointed out that in the U. S. Pharmacopeia fully 70 per cent. of the articles are more or less intimately dependent on plant drugs. Pharmacognosy itself is a distinct branch of science and involves problems that differ essentially from those presented by botany or the simple study of plants themselves. It is broader than botany in that it includes the study of conditions which tend to modify the constituents of drugs. Drugs themselves, or at least many drugs, are becoming scarce, and this fact makes the proper study of pharmacognosy even more important, so as to be able to secure genuine and pure drugs.

Speaking of the U. S. P. VIII, he pointed out that this book is not abreast of the advances that have been made in pharcognosy, and that it is, in fact, distinctly behind the German Pharmacopeia which was published five years before. Foreign pharmacopeias generally include adequate pharmacognostic descriptions, and all of them require the use of the compound microscope. Some of the foreign pharmacopeias do not recognize powdered drugs, and there is much to be said in favor of this, as powdered drugs are always difficult of recognition and generally tend to deteriorate rapidly.

Speaking of the recently published report of the A. Ph. A. committee on the drug market, he deplored the fact that this report reflects discredit on pharmacognosy and the pharmacognosists of the country. He asserted that men who claim to be trained in pharmacognosy should and must be able to distinguish between true and fraudulent drugs. The whole subject of drugs should be on as satisfactory a basis as are spices, and the Pharmacopeia should provide a purity rubric for vegetable drugs, so as to avoid effectually the present-day conditions under which drugs vary from 0 to 99 per cent. in value. In regard to the proposals to standardize the finished products, he pointed out that assay methods are as yet incomplete, and that galenical preparations of drugs do not depend for their activity on the action of any one ingredient. Many drugs contain antagonizing products that materially influence the direct action of the so-called active constituent; for these reasons a fluid extract when made from a poor or unsatisfactory drug cannot fully represent the complete and necessarily complex action of a representative drug of good quality. In this country, the campaign of education has only begun and much is yet to be done before medical men and pharmacists fully appreciate the possibilities and the value of pharmacognosy. Because of this lack of appreciation of the value of pharmacognosy, the Pharmacopeial Convention should not bind the hands of the subcommittee, and above all the Committee on Revision, as a whole, should not be empowered to revise (?) the work of men who are closely in touch with practices in the drug market and the possibility of developing methods for controlling the nature and purity of vegetable drugs.

MR. H. H. BARTLETT, in discussing the nomenclature of the Pharmacopeia, pointed out that approaching the question from the viewpoint of an outsider it would appear desirable that the science of pharmacy and all that pertains thereto should be made universal, and that above all it would appear desirable to conform to widespread practices in connection with nomenclature. As an illustration of the shortcomings of the U. S. P. VIII in the matter of nomenclature, he reviewed the names proposed by the Brussels Conference for the several potent medicaments included in the protocol and the compliance or lack of compliance of the U. S. P. with these several titles. For syrup, he believes that the more generally accepted Latin "Sirupus" is to be preferred to the U. S. P. style "Syrupus," as the former is not alone more widely used but also generally accepted as being the correct form. For ergot he believes "Secale cornutum" to be preferrable to "Ergota," as the latter has no status as good Latin.

"Fluidextractum" he thinks a good illustration of the fantastic Latin that may be evolved by American scientists. He discussed this term at some length and pointed out that it was against all accepted practices to include or look up a prefix between two root words. Apart from the hybrid character of this word, both the English as well as the Latin, it is and will continue to be an insurmountable barrier to International nomenclature; as foreign countries will not adopt it, the linguistic sense being better developed in Europe than in this country. Many of our chemical names are also in need of revision so as to bring them into harmony with present-day thought in chemical theory and in keeping with the nomenclature now generally adopted abroad. Thus, the alkaloids should have the termination "um" in place of "a," so as to bring them into accord with the nomenclature of modern chemistry.

DISCUSSION

PROF. JOS. P. REMINGTON said that we should have many such meetings as this between now and the time for the convening of the Pharmacopeial Convention in May. Taking the several communications in the reverse order to which they had been presented, he disclaimed any intention of posing as a philologist, but he was and is unalterably opposed to the indiscriminate changing of Latin titles. The matter of "Fluidextractum" he pointed out had the endorsement and sanction of the late Charles Rice, who was generally recognized as a Latin scholar of some note. The most serious objection that has been made to this word is the charge of novelty, and this, he thinks, is not a serious fault when we appreciate the great advantage that has accrued from the segregation of the several extractive preparations in the Pharmacopeia and the classing together of all of the fluid extracts instead of having them, as formerly, interspersed with the extracts. Professor Remington believed that the Committee on Revision should be extremely conservative in the matter of nomenclature changes, if for no other reason than the millions of dollars' worth of labels that would be involved. He discussed the difficulties in connection with volatile oils at some length, and pointed out that the need for detecting adulteration in this class of preparations brought to mind some of the many suggestions that have been made in connection with pharmacopeial tests; some men wanting simple tests, others preferring complex measures. He expressed his belief that the very best test would be none too good for the Pharmacopeia, and that now that the Pharmacopeia was the law of the land, the intelligence of the drug clerk was not to be considered as a reason for limiting the nature of the assays or tests to be included in that book. In the matter of vegetable drugs he believed that we must depend, for many years to come, on the accuracy of the pharmacopeial description of these substances. Now that powdered drugs are so widely used they should be fully described in the U. S. P. so as to facilitate their recognition and thus control their identity and purity.

He expressed the belief that a long list of synonyms would be dangerous as it would lead to confusion and unnecessary complications. He pointed out that many names that were practically identical were nevertheless used for substances that might differ materially, and that the Pharmacopeia was limited to but one substance under each name. Admissions to the Pharmacopeia he believed should be left to physicians. He expressed the opinion that the American Medical Association, through its committee on the U. S. P., should prepare and present at the coming Pharmacopeial Convention a tentative list of admissions and deletions. Such a list would certainly be accepted by the Committee on Revision, as it was apparent that drugs to be used by the medical profession for medicines should be dictated by physicians. Doses, of course, should also be furnished by members of the medical profession.

DR. H. W. WILEY expressed himself as being satisfied that there was every assurance of our having a satisfactory Pharmacopeia. He agreed with Professor Kraemer that it was desirable to have pure drugs. Nature was a wonderfully capable synthetic chemist and the products of Nature's workshop were usually complex. As an example of the folly of placing too much reliance on a single ingredient, he cited tea and coffee, both of which have as their main active constituent caffein, but this constituent was so modified by the accompanying substances that no true lover of coffee or tea would depend on the caffein content of his beverage as an indication of its value. Much the same can be said of other drugs, which if they have virtues, should be available in as satisfactory form as possible. The coming revision of the U. S. P., to be generally acceptable, must be conducted on a distinctly higher plane and must embody a broader view of the whole general subject, greater skill of the individuals who are responsible for the revision and a greater appreciation of the public welfare, for after all was said and done the Pharmacopeia was not a book for the retail druggist, the manufacturer, or the physician, but was designed, primarily, to protect the unfortunates who are in need of medicine to make them well.

Dr. Wiley paid a high tribute to some of the members of the Committee on Revision and said that if his prayers prevailed these members would find a place on the Committee on Revision for the U. S. P. IX; on the other hand, he asserted that there are a few who, if his prayers are answered, will not even seek a place on the coming Committee on Revision as they can well be spared.

Dr. Reid Hunt asserted that no one was more cognizant of the difficulties connected with the matter of admissions and deletions than he. He also pointed out that it would be practically impossible to make a Pharmacopeia that would comply with the supposed needs of all who are interested in a book of this kind. He believed the Pharmacopeia should be limited to the best and most widely used drugs in medical practice, leaving it to others than the members of the Pharmacopeial Convention to establish standards for articles primarily of commercial rather than of medical interest. Also in view of the fact that medicine is distinctly international and that the next U. S. P. will probably draw, as it has always done, very largely from foreign sources, he said that greater efforts should be made to attain international agreements both as regards standards and nomenclature. In this connection he pointed out that for the newer remedies, particularly for the substances that have been protected by patents, there now exists a greater degree of uniformity than has hitherto been found in connection with drugs that have been in use for centuries.

Professor Kalusowski expressed himself as being in favor of physicians dictating the remedies that should enter into the Pharmacopeia and that the revising of the book should be done by pharmacists and specialists thoroughly familiar with the possibilities of the times. He also stated that the Pharmacopeia should be more evenly balanced and that the space devoted to the several subjects should be more in keeping with their relative importance. Being a legal authority, the Pharmacopeia should contain only the best available tests and these should be stated in language that is clear and yet concise.

Professor Remington said that from the point of view of Dr. Hunt, engaged as he is in research and in the study of the newer remedies and newer theories that are advanced from time to time, one was likely to get an entirely wrong impression of the articles the rank and file of medical practitioners, the men who are saving the lives of their patients, were using. Many medical men live in districts where the newest and latest remedies have not reached and for this reason antiquated and obsolete substances cannot be entirely ignored. That even otherwise up-to-date physicians at times appreciate the efficacy of old-time remedies was illustrated by the stand taken by one of the physicians on the Committee on Revision, who, when it was proposed to delete the mixture of asafetida, pointed out that he himself had found it to be a useful remedy in flatulence and was using it daily in his practice and, on the representations of this particular member of the committee, mixtures of asafetida was retained in the U. S. P.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, held at Omaha, Neb., Dec. 20-21, 1909

(Continued from page 316)

Movable Liver and Constriction-Lobe of the Liver

Dr. M. L. Harris, Chicago: Movable liver is found in two classes of patients: those in whom the movable liver is the chief or only abnormal condition present, and those in whom it is but a part of a general visceral ptosis. In the former class the condition is probably due to congenital defects of the attachments of the liver, while in the latter class the loss of the support affected by a firm abdominal wall, together with a gradual yielding and elongation of the attachments of practically all the abdominal organs, plays an important part in the condition. Constriction-lobe is a very common condition, being found, according to Leue, in 1.9 per cent. of male, and 25.3 per cent. of female subjects over 16 years of age, in which he performed an autopsy, 3,484 in number. Both movable liver and constriction-lobe may give rise to symptoms which are distinct and often distressing, relieved only by properly suturing the liver in place, or by suturing the floating lobe to prevent its abnormal mobility.

DISCUSSION

Dr. R. C. Coffey, Portland, Ore.: I make it a point to fix a movable kidney where it can always be felt with the hands afterward; and the patient does not have pain and redisplacement, and the results are good. In twenty-two cases of gastroptosis I found the liver displaced in four cases sufficiently to require suture; but my technic has been a little different from that of Dr. Harris, in that I do not believe it is necessary to scarify the liver. In the cases I have had there has been no redisplacement.

Dr. James E. Moore, Minneapolis: A woman, a neurasthenic, was confined to bed most of the time, complaining of a tumor in the lower abdomen. I found that the right end of the liver was loose, so that when she turned on the liver side the edge of the liver ran up and down, the organ being pushed over to the middle of the abdomen. Shortly after suturing the liver in place the woman got out of bed and has been traveling all over the United States and other countries since.

Dr. A. F. Jonas, Omaha: At a meeting in Chicago I reported three or four cases of ptosis of the liver in which the margin of the liver descended four fingers' breadth below the right costal margin. At that time I had used the gall-bladder as a suspensory ligament. The patient was placed in the semi-Trendelenburg position and the liver pushed up as far as it would go, and sewed with the gall-bladder to the upper margin of the incision, which was extended up against the costal arch. This operation was successful. I have occasionally done the operation since, but only in cases in which the liver could be pushed in its normal position.

Two Cases of Operative Removal of Cervical Ribs

Dr. S. C. Plummer, Chicago: The first patient was a woman of 24. Symptoms began 8 years ago and consisted, at first, of pain extending from the axilla to the middle of the ulnar side of the forearm. Four years ago there was weakness of the hand and later some muscular atrophy appeared. Pain was aggravated by slight exertion. There was no anesthesia.

The second patient was a woman of 30, whose symptoms began 20 years ago. Pain in this case was confined to the ulnar side of the forearm; as in the first case, it was aggravated by exertion, but was also brought on by exposure to cold. She also suffered from coldness of the extremity. There was atrophy of the thenar and interossei muscles. There was no anesthesia. Both of these patients had bilateral cervical ribs, as shown by the skiagrams, but in both the symptoms were confined to the right upper extremity. The first patient was operated on March 16, 1905, and her case was included as Case 37 in Keen's article, published in the *American Journal of the Medical Sciences*, February, 1907. The second was operated on Sept. 22, 1909. In each case an incision extending obliquely upward and backward for about three inches from just above the right clavicle at the outer border of the sternocleidomastoid muscle, was employed. The *first* patient reports, Dec. 14, 1909, that she now has *very little pain*, but that the strength of her hand has not *improved*. The second patient was almost entirely free from pain one month after the operation, but is still somewhat sensitive to cold.

DISCUSSION

Dr. James F. Percy, Galesburg, Ill.: Four years ago I saw three cases of cervical rib in one year, one of them *in a girl* of 14. The patient was referred to me because of a swelling in the neck above the clavicle. I saw her with the late *Nicholas* Senn, and I mention these cases to give his opinion in reference to operation. This girl had some pain in the left arm, but it was not constant. The *x*-ray showed what the condition was. Dr. Senn advised against operation, because, he said, in the first case of cervical rib he operated on he *opened the* pleura, and got collapse of the lungs, which *never recovered*. This patient had a similar condition on the other side, but he did not have the courage to operate and said he would not advise it until it became imperative. The next case was a girl of 16, and in this case the cervical rib was also on the left side. It was discovered by the dressmaker, and the patient came to me because of swelling. The third case was in a girl of 20, who had this *condition on* both sides, and was urged to have something done, because of what the dressmaker said in regard to enlargement of the lower part of her neck. Not one of these patients has been operated on up to date. I have beautiful skiagraphs of all three cases.

Dr. L. L. McArthur, Chicago: Not all of these cases of cervical ribs produce symptoms attended by pain. I saw a woman with a case of double cervical rib, which produced atrophy of the muscles of the hand and double drop-wrist, but unaccompanied by pain. Being familiar with the fact that not all cases of cervical rib are relieved by operation, and in stating the case to her, and she not being assured she would get relief, operation was refused.

Dr. A. F. Jonas, Omaha: I have a case of cervical rib I would like to place on record in a young woman of 21. She had a swelling in the left side of the neck, which was tender and hard, and had been diagnosed as sarcoma of the cervical vertebra. A skiagram showed a cervical rib. She had no symptoms referable to the hand or arm. They felt normal in every respect; but there was pronounced and decided tenderness over the rib, the point of which could be seen pressing underneath the skin. On account of tenderness and the pain it caused her it was decided to remove the rib. We cut down upon it and found running over it what we thought was the common carotid artery, and in pressing it, it was found to be the subclavian artery, which rolls up over the rib at least three-quarters of an inch, and then dips down shortly. I wish to call attention to the anomalous course of the subclavian artery on the left side in this particular case.

Dr. Harry M. Sherman, San Francisco: I would like to say a few words about the persistence or recurrence of pain in these cases. A woman of 30 complained of pain *in the arm*. Cervical rib was suspected on account of the character of the pain. The rib could be felt, and a skiagram showed its presence. It was removed without any trouble, and the pain and the disability symptoms disappeared. She returned to her home in the South, but came back in a few months stating that the pain had recurred, and examination did not reveal any change whatever in the condition of her neck from what it had been when she left me. She was pregnant, and returned to San Francisco to be confined in the home of her mother. I report this case with reluctance, because the baby has not yet been *born*. I wanted to see especially if the pain would disappear again after pregnancy and confinement; that is, if there was some condition of the nerves left after the removal of the rib, which predisposed this patient to pain sometimes, whenever a special strain was put on the individual; and I think that is all the more likely from Dr. *Plummer's report* of the slow recovery of the patients whose cases he has reported.

Hernia: What Constitutes a Predisposition?

Dr. A. F. Jonas, Omaha, Neb.: *In this paper I draw the* following conclusions: 1. All deductions as to predisposition to hernia that are based on the *direction* and size of the inguinal *canal*, a large *external ring*, are untrustworthy. 2. All *opinions as to predisposition* based on the vague ideas of muscular weakness, *reduced abdominal* resistance and diminished support of connective *tissue structures*, are unreliable. 3. Retarded descent or *undescended* testicle favors a *complete* or partial non-obliteration of the vaginal process. 4. A partial or a completely non-obliterated vaginal process may be *regarded* as an anatomic predisposition to oblique inguinal hernia. 5. The non-closure of the vaginal process cannot be recognized *clinically*. *6. It* would seem that we are scarcely justified in *using the term* predisposition to hernia, because of the lack of *reliable clinical data*.

The Frequency of Congenital Sacs in Oblique Inguinal Hernia

Dr. William Hessert, Chicago: The saccular theory of the origin of oblique inguinal hernias is nothing new. Mention of the congenital origin of hernial sacs was *made in 1762* by Camper. The testicle, at first *an abdominal* organ, reaches the internal ring, through the agency of the gubernaculum, at about the seventh month, and reaches the scrotum at the time of birth. At this time the vaginal process is continuous with the peritoneal cavity. From ten to twenty days after birth, obliteration takes place. This begins at the external ring and proceeds more rapidly *downward than* upward. At three points there seems to exist a greater tendency to obliteration, namely, (1) at the internal ring, (2) at the external ring, and (3) at a point just above the testicle. Dissections of Zuckerkandl, Camper, Sachs, and others have shown that in almost half of the infant bodies examined the vaginal process was found to be open on one or both sides. The right testicle descends later than the left, and defects of closure of the vaginal process are twice as frequent on the right side as on the left. The saccular or congenital theory of oblique *hernia* is that one which credits the majority of these hernias as being due primarily to the improper closure of the vaginal process in the infant, and the persistence of a sac, which later gives rise to hernia. These sacs have been found in cases in which a hernia never developed. They explain the sudden coming down of a hernia. The atypical closure of *the vaginal process* explains the different varieties and combination of hernia sacs and hydroceles. Among the signs by which a sac may be recognized at operation as of congenital origin are the following: (1) glove-finger-like and narrow sac, generally empty; (2) thin wall; (3) absence of subserous fat; (4) trabeculated structure; (5) annular constrictions, which often *still* correspond with the internal or external ring; (6) thickening of fundus; (7) fibrous process extending downward from fundus nalis testis; (8) close relationship of sac to vas deferens and a variable distance, sometimes reaching to the tunica vagi- spermatic vessels—the latter may be spread over the sac; (9) sac still enveloped by fibers of the cremaster. The following conclusions may be drawn: 1. Over three-fourths of all *oblique* inguinal hernias owe their existence to a preformed sac, the result of some form of faulty closure of the vaginal process in the infant. 2. Congenital malformation of the muscles of this region, as seen in the failure of the internal oblique and transversalis to form a conjoined tendon, is a predisposing cause of both oblique and direct hernias. 3. The lesson to be learned from this study is that inasmuch as the hernia owes its existence to a preformed sac, the essential and *fundamental* act in any hernia operation consists in the complete ablation of the sac. The surgeon should avoid the leaving of an infundibuliform process, which may be the cause of recurrence, no matter what the type of operation has been.

Some Anomalies of the Sigmoid

Dr. L. L. McArthur, Chicago: In May, 1909, I was called to operate in a case of intestinal obstruction of eleven days' duration, occurring in a young woman, a teacher, about 30 years of age, whose history was negative, except for *chronic* constipation. For several days she had had no bowel movements, in spite of cathartics, colonic flushings, etc. *Becoming* tympanitic and suffering colicky pains, she consulted her family physician, who, being unsuccessful in relieving her, sent her to Dr. *Montgomery's sanitarium*. When seen by me *on the* eleventh day she presented an anxious appearance, cold, clammy extremities, enormously distended abdomen, had but slight temperature (below 100 F.), rapid and weak pulse, low leucocyte count (12,000), vomiting not fecal; abdomen tympanitic all over, no tumor to be felt externally, nor by rectum; vaginal vault and uterus crowded downward. Though weak, operation was advised. On opening the abdomen the small and large intestines both dilated, but the chief dilation existed in an enormous loop wedged in the pelvis. On raising this loop it was seen that it was the sigmoid, that it was sharply flexed at the point of junction with the rectum, and that the relief of its incarceration permitted its contents to pass down into and out of the rectum, with reduction of colonic distention. Fear that so simple a procedure might not explain so obstinate an obstruction, careful and extensive search was made throughout the abdomen without finding any other cause. The mesosigmoid showed thickening, scar tissue and old infiltration; I anchored the loop of sigmoid posteriorly with its distal and proximal ends unusually close together, and the band of Gersuny was very evident. The latter was cut, the very large sigmoidal loop restored to the left abdominal cavity, the small intestines restored to the pelvis, the omentum drawn down over the sigmoid, and the abdomen closed. Recovery was uneventful. I am in accord with Dr. Clark in not favoring the fixation by suture of such loops to either the anterior or posterior wall, as the potential dangers are almost equally as great as that of recurrence. Were a similar case to be encountered and the patient not in quite so desperate a condition, I should make a side-to-side anastomosis between the proximal and distal end before restoring it to the abdomen, just as I have corrected a rectal prolapse by anastomosing the drawn-up rectum to the first portion of the sigmoid. A few months ago I saw Dr. Arbuthnot Lane remove an entire colon for chronic obstinate constipation, in which he commented upon the frequency with which the most refractory cases of constipation were associated with prolapse of the dilated sigmoid, this while in the act of lifting such a sigmoid from the pelvis.

DISCUSSION

DR. A. E. BENJAMIN, Minneapolis: I wish to report one case and to mention a number of others I have seen in which the patients had symptoms of pronounced constipation, and some of them having other conditions which demanded operation. I have made it a practice in nearly all these cases to investigate the condition of the sigmoid. I found undue angulation of the sigmoid, with thickening around it, and some bands. These I have separated. The previous history of these cases has usually been that of extreme constipation. Recently I operated on a girl, 18 years old, who was attending college. She came to me for the sole purpose of being relieved of extreme constipation, as she said she was not troubled in any other way. Careful examination revealed enlargement of the left ovary. It was slightly cystic. My experience in other cases taught me there was something else wrong. I operated and found a small dermoid cyst of the ovary which could have had very little to do with the constipation for which she sought treatment. I found a dilated condition of the sigmoid, with extreme angulation, thickened band fibers, and constriction of the sigmoid. These were separated and the raw surface covered. Since that time her bowels have moved regularly every day, without the aid of cathartics, whereas before operation she would go for a week without a bowel movement.

(*To be continued*)

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Annual Meeting, held in New York City, Nov. 27, 1909

(Concluded from page 312)

Influence of Regenerating Tissue on the Animal Body

DR. CHARLES R. STOCKARD, New York: When the adult animal body regenerates new tissue in order to replace a lost part, or when abnormal secondary growths arise, the growth equilibrium of the body is disturbed, and this disturbance is followed by changes which affect the usual physiologic condition. The question arises whether the changes which follow or accompany normal regenerative growth are in any way similar to the effects resulting from malignant growths. In order to test this proposition experiments have been conducted with a series of animals regenerating different amounts of body tissue. The animal used was the medusa, *Cassiopea xamachana*, since it readily regenerates new arms as well as portions of its body. Its food supply may also be perfectly controlled.

In the first experiment each of twenty selected individuals had five of the eight oral-arms amputated at their bases, and another similar group of twenty specimens had in addition to the five arms a piece of definite size cut from their bodies. Both groups, therefore, regenerate equal numbers of arms, but the latter group also grows new tissue to replace the removed body piece. All these regenerating individuals decrease in body size more rapidly than uninjured specimens kept under similar conditions. The second group, which was regenerating more new tissue, decreased in size much more rapidly than the first during the early part of the experiment. After two weeks, however, the removed body piece had been replaced, and it is important that after this period the second group ceased to decrease in size any more rapidly than did the first group. After this period both groups were growing only the five new arms. The regeneration of new arms proceeds more rapidly at first and gradually slower. Associated with this fact is a primarily more rapid decrease in the body size and later a smaller decrease in proportion as the regeneration rate of arms is slower. Regenerating tissue grows at the expense of the animal body and will continue to grow at a vigorous rate even though the body be starving to death. When an additional amount of regeneration is imposed on an animal it suffers in body size and vigor, and when this additional formation of new tissues ceases the unusual decrease in body size also ceases. If an animal regenerates new tissue at a rapid rate the body suffers more markedly than when the regeneration rate is slower. Other somewhat differently devised experiments gave results which entirely confirm the above statements. A comparison between the manner in which newly regenerating tissue affects the animal body and the reaction of the body to malignant growths is most suggestive, and there are undoubtedly many points of similarity between regenerative and malignant growths.

Case of Blastomycosis Associated with Epithelioma of the Jaw

DR. WILLIAM B. COLEY, New York: The patient, a man aged 25, was admitted to the General Memorial Hospital as a case of generalized sarcoma on Dec. 9, 1908. The first symptom which was noticed 3½ months prior to his admission was a severe sharp pain in the lower part of the left chest. Two and a half months before admission he had an attack of hematuria, the same recurring at intervals of from 1 to 2 weeks up to 2 weeks before admission. One and a half months before admission the first tumor was noticed in the right side of the lower jaw at the angle of the mouth. A few days later a similar mass appeared in a corresponding position in the left portion of the lower jaw. There was rapid increase in the size of the tumors and loss in weight. A few weeks previously a tumor developed in the region of the left kidney. At the time of his admission there was a tumor in the right side of the mouth about the size of an English walnut, and a similar somewhat smaller tumor in the left side; a tumor over the lower part of the sternum 1½ inches in diameter, very hard and firmly fixed, but not tender. Liver and spleen were not enlarged. A specimen which had been removed from the tumor of the lower jaw at Mt. Sinai Hospital three weeks before the patient's admission to the General Memorial was reported by the pathologist of Mt. Sinai Hospital as "endothelial sarcoma." On Dec. 12, 1908, the temperature rose to 105 F.; on December 14 to 106 F., and remained between 102 and 104 F. for nearly two weeks. The blood examination showed marked leucocytosis. The patient's general condition was little affected during the highest temperature. The tumor over the sternum increased with great rapidity; on December 30 it had become larger than two fists. Aspiration done under careful aseptic precautions drew thick, dark creamy pus which was placed in sterile tubes; blastomyces were found in the pus. The tumor continued to increase rapidly in size, and a week later reached the size of a child's head. It was incised under cocain anesthesia and drained. Numerous tumors developed with great rapidity in various parts of the body. Death occurred on Feb. 9, 1909. Paralysis of the lower extremities had set in 38 hours before death. Death occurred on the sixty-first day after admission to the hospital, five and a half months since the beginning of the first symptoms. Examination at death showed fifteen tumors externally in various parts of the body. There was no tenderness present in any of these tumors, except the large discharging tumor in the right upper chest, and this was not tender in the early stages. A portion of the larger jaw tumor was removed and examined by Dr. James Ewing, pathologist to Cornell University Medical School. His report read as follows: "The material contains a malignant epithelioma. It is pigmented, which suggests that the original growth was a pigmented mole. I could find no blastomyces in the material and cultures were negative." I cannot express any opinion as to whether the blastomyces played any part in the etiology of the tumors of the jaw. The coexistence of an epithelioma of the jaw with the other tumors of blastomycetic origin was certainly interesting.

DISCUSSION

Dr. James Ewing, New York: The evidence on which the diagnosis of blastomycotic infection is based must be admitted to be defective in this case, in that no cultures were obtained and no blastomyces found in the tumor. Evidently the patient had a severe general infection, but the relation of the blastomyces found in the pus to this infection is not clear.

Early Cutaneous Carcinoma, Illustrated by Lantern Slides

Dr. H. H. Janeway, New York: The photomicrographs here presented represent a graduated series of the two varieties of epitheliomata of the skin, the squamous and the basilar celled growths. A study of the series justifies conclusions which are not entirely in accord with the views of either Borrmann or Ribbert. These two writers have made the most important recent contributions on the early stages of epithelioma and represent divergent aspects of the autogenetic theory of cancer. While some of the tumors here illustrated appear to have grown from previously isolated groups of cells, and others indicate a close relation between chronic inflammatory processes and beginning epithelioma, yet one must conclude, from the series of sections here presented, that neither an embryonal deposit nor a cellular infiltration of the connective tissue stroma is the essential factor in the etiology of all cancers; but that the great majority of cutaneous epitheliomas originate by a primary metaplasia of the body cells. One may, however, go further than this and state that the peculiar clinical features of the two somewhat unusual cases of multiple superficial epitheliomata herein reported, indicate that such a metaplasia depends on what one may, somewhat indefinitely but nevertheless properly, term individuality. There is something about these patients which results in their skin cells possessing a peculiar proneness to undergo a primary cancerous metaplasia.

In one of these cases, the one from which the youngest tumors were taken, there existed a hitherto undescribed subepithelial capillary congestion in association with the most minute growths. This subepithelial capillary congestion is of such a character that it suggest a liberation of regenerative or proliferative functions in the cells becoming epitheliomatous; and such a change may be conceived of as occurring and increasing, according to the conception of Benecke, at the expense of the normal physiologic functions of the cells.

A consideration of these various facts, together with clinical evidence, indicates that the essential change applicable to all cases in the transition of somatic cells into cancer cells, is primarily of the nature of a degeneration—a degeneration which, in one class of cases, depends on the existence of a previously isolated group of cells; in another class, on associated lesions in the connective tissue stroma, including among these changes the above described subepithelial capillary congestion; and in still a third class, which is by no means a numerically unimportant one, on metaplastic activities for which the epithelial cells are alone responsible. The development of cancer in these latter cases is unassociated with any changes in the connective tissue stroma and individuality of the cells is doubtless a determining factor in the development of the degeneration in them.

Peculiar Cell Inclusions, Probably Parasitic, in Chronic Lesions of the Spleen, Liver and Lymph-Glands from a Case of Endemic Goiter

Dr. S. B. Wolbach, New York: Peculiar cell inclusions, which are undoubtedly parasitic, were found in a case of colloid hypertrophy of the thyroid gland. The patient came from a locality where "goiter" is common. The parasites are very numerous in lesions in the spleen, cervical, mesenteric and prevertebral lymph nodes and in the liver. The lesions are granulomatous in character. The smallest lesions consist of groups of endothelial cells. Larger lesions, the size of miliary tubercles contain numerous giant cells, and the lesion as a whole resembles tuberculosis, but necrosis does not occur. Marked connective tissue increase and final cicatrization is the rule. The parasites are found in giant cells and in endothelial cells. Barely they have been found free in lymph sinuses. The largest forms are from 20 to 30 microns in diameter, and consist of a central body from 3 to 5 microns in diameter, surrounded by radiating spinous projections. The central body and spinous projection stain by Gram's method. Material surrounding the central body decolorizes by Gram's method. Giant cells containing these radiate structures usually contain, also, small bodies within vacuoles. Similar minute structures, many with a single central deeply staining dot or spinous projection, are found within endothelial cells in early lesions. The finding of intermediate forms between the minute bodies in vacuoles and the large radiate structures has established the opinion that these inclusions represent stages in the evolution of a parasite. The inclusions are not affected by solvents for fat, or by acids and alkalies. They do not stain with osmic acid or other fat stains. They can be readily demonstrated in frozen sections of formalin material. The nature of the parasite has not been determined. The best interpretation of the radiate structures is that they represent capsular material surrounding the parasite, analogous to the forms produced after intravascular inoculation, by the acid-fast bacteria and the organism of coccidioidal granuloma.

DISCUSSION

Dr. F. B. Mallory, Boston: We have just had a similar case at the Boston City Hospital, in which lesions resembling early miliary tubercles were found in the spleen in numbers, and in the liver sparingly. The lesions consisted of endothelial cells and giant cells. There was no necrosis. Within the giant cells were radiate bodies, corresponding in every particular with those described and demonstrated by Dr. Wolbach. Against the view that these bodies are parasites, is the fact that in a giant-cell sarcoma that we had in the department a number of years ago many of the giant cells contained spiculated bodies similar to those in these two cases, but somewhat smaller in size.

Dr. James Ewing, New York: Some years ago, in examining the brain of a case of pernicious malaria, I found in the ganglion cells wreaths and star-shaped structures in astonishing geometrical arrangement, somewhat resembling the bodies described by Dr. Wolbach. Similar structures were afterward found in a case of tuberculous meningitis. These bodies were artefacts, and showed how very peculiar intracellular products may appear. I do not wish, however, to suggest that the bodies described by Dr. Wolbach were not parasitic, as is strongly indicated by their remarkable structure and wide distribution.

Dr. S. B. Wolbach, New York: The stellate or radiate inclusions could not be dissolved by fat solvents, acids or alkalies, and their constant occurrence in giant cells, in widely distributed lesions, is more in favor of their parasitic nature than is the morphology. I admit that the morphology was unsatisfactory, but the fact that similar bodies have not been seen in the experience of well-known pathologists augurs against the possibility of the inclusions' being deposits or artefacts. Moreover, they occurred in formalin-fixed tissues, as well as in Zenke-foxed material, and, therefore, were not like the structures described by Calkins and Gaylord, and attributed to corrosive-sublimate crystals.

Marriages

Arthur S. Monzingo, Tacoma, to Miss Bernice Green, of Boise, January 12.

Charles V. Wadlinger, M.D., to Miss Ethel M. Moore, both of Pottsville, Pa., January 14.

Charles Joseph Dillon, M.D., to Miss Helen Walsh, both of New York City, January 12.

Thomas MacRae, M.D., to Miss Emma Dean Fordyce, both of New York City, January 18.

Harold K. Mouser, M.D., Fort Wayne, to Miss Fay Strother, of Latty, Ohio, recently.

Harry Hazleton Penquite, M.D., to Miss Hazel Owens, both of Colfax, Iowa, January 13.

Edwin Ayres Kelleam, M.D., to Miss Ophelia Everidge, both of Grant, Okla., December 22.

Edward B. Pries, M.D., El Paso, to Clotilde C. Jacquet, M.D., of New Orleans, January 26.

A. J. Evans, M.D., to Miss Blanche Lefler, both of Elida, N. M., at Portales, N. M., January 7.

Thomas Deveaux Hall, M.D., to Miss Geneva Telene Olson, both of Elliott, Miss., October 5.

Ernest R. Middleton, M.D., Winters, Texas, to Miss Edith Fred of San Marcos, Texas, January 10.

Joseph Washington Goldsmith, M.D., Brooklyn, N. Y., to Miss Julia Moog of Chicago, January 18.

Mort W. Waful, M.D., Waurika, Okla., to Miss Katherine Ethel Hudler, of Wilton, Iowa, January 13.

James Arthur Attridge, M.D., to Miss Florence Ella Sparrow, both of Harbor Beach, Mich., December 8.

Edward Victor Valz, M.D., U. S. Navy, to Mrs. Charles Noble Wrenshall, at Pittsburg, Pa., December 29.

Ernest Albert Jenkinson, M.D., Sioux City, Iowa, to Miss Evarista Ryan Mullally of Jackson, Neb., at St. Louis, January 5.

Deaths

Ellery Denison, M.D. New York University, New York City, 1853; a member of the American Medical Association, and of the Mayflower Society; school trustee for eighteen years and examining surgeon of enrollment in New York City in 1861; from 1855 to 1865 attending physician to the Northern Dispensary for the Diseases of Children, New York City, and for twenty-two years thereafter attending physician to the Home for Aged Men and Cripples; died at his home in New York City, January 13, from gastritis, aged 82.

Andrew Moses Moore, M.D. University of Pennsylvania, 1869; a member of the American Medical Association; who entered the Navy in 1869, served eleven years and eleven months at sea, and twelve years and one month on shore duty; for several years on duty at the Naval Recruiting Rendezvous, Chicago; and was retired with the rank of lieutenant commander Aug. 14, 1893, on account of incapacity resulting from incident of service; died in Naples, Italy, January 12, from pneumonia, aged 64.

W. Frank Haehnlen M.D. University of Pennsylvania, 1882; professor of obstetrics in the Medico-Chirurgical College of Philadelphia, and head of that department for fourteen years; obstetrician to the Medico-Chirurgical Maternity and gynecologist to the Philadelphia General Hospital; formerly lecturer and instructor in obstetrics at the University of Pennsylvania and physician-in-chief and gynecologist to the Samaritan Hospital; died at his home in Philadelphia, January 14, from pneumonia, aged 50.

John H. Ewing, M.D. Jefferson Medical College, 1877; formerly a member of the Medical Society of New Jersey, and president of the Hunterdon County Medical Society; local pension examiner, and county physician; surgeon to the Lehigh Valley Railroad, and to the Hunterdon county jail; a member of the original commission and president of the board of managers of the New Jersey State Village for Epileptics, Skillman's; died at his home in Flemington, January 12, from neuritis, aged 56.

George L. Bowman, M.D. University of Wooster, Cleveland, 1878; a member of the Ohio State Medical Association; health officer of Black River township, pension commissioner, township trustee, clerk of the township board, and clerk of the board of education; for more than 30 years a practitioner of Lorain; died in Dr. Frederick's Hospital in that city, January 9, from angina pectoris, aged 56.

Joseph H. Chandler, M.D. Jefferson Medical College, Philadelphia, 1860; formerly a member of the American Medical Association; surgeon of the Fifth Delaware Volunteer Infantry during the Civil War; ex-president of the Delaware State Medical Society; said to have been the oldest practitioner in the state; died at his home in Wilmington, January 14, from heart disease, aged 70.

James Thomas Green, M.D. University of Alabama, Mobile, 1860; of Green Springs, Fla.; surgeon of the Third Alabama Infantry, C. S. A., during the Civil War; in 1898 city physician of Tampa, Fla.; formerly local surgeon of the Plant System and Atlantic Coast Line; died at the home of his daughter in Tampa, January 8, from arteriosclerosis, aged 75.

Jesse Leeka, M.D. Physio-Medical College of Indiana, Indianapolis, 1878; a veteran of the Civil War; at one time coroner of Howard county, Ind.; and afterward postmaster, police magistrate, justice of the peace, township clerk, and village clerk of Oakwood, Ill.; died at his home in that place, January 4, from senile debility, aged 79.

Francis Meigs Thomas, M.D. University of Louisville, 1893; of Leonardville, Kan.; surgeon of the federal penitentiary, Fort Leavenworth, Kan., from 1896 to 1900, and from 1901 to 1906; and afterward a resident of Asherton, Texas; died in the Southern Pacific station, San Antonio, Texas, January 12, from heart disease, aged 39.

William Bascom Davis, M.D. Missouri Medical College, St. Louis, 1880; local surgeon of the Chicago and Great Western Railway, at St. Joseph, Mo.; for eight years physician of Buchanan county, and for two years city physician of St. Joseph; died at St. Joseph's Hospital, January 5, from cerebral hemorrhage, aged 54.

John Hanson Wheeler, M.D. Kentucky School of Medicine, Louisville, 1855; a veteran of the Mexican and Civil wars; formerly superintendent of the Masonic Widows' and Orphans' Home, Louisville, and a member of the city council; died at the Church Home and Infirmary, Louisville, January 8, from senile debility, aged 83.

Abner Duell Thomas, for two years a student at the University of Michigan; afterward assistant surgeon of Illinois volunteers, and later surgeon of the Third Arkansas Volunteer Cavalry during the Civil War; died at his home in Little Rock, Ark., December 21, from tetanus due to a machinery accident, aged 70.

John Jacob Prevaux, M.D. Harvard Medical School, 1898; a member of the Massachusetts Medical Society; representative from Amesbury to the state legislature from 1890 to 1894; and senator from the fourth Essex District in 1896 to 1897; died at his home in Haverhill, January 6, from cerebral hemorrhage, aged 52.

Samuel Creed Gholson, M.D. Hampden-Sidney College, Medical Department, Richmond, Va., 1851; surgeon in the Confederate Service during the Civil War; formerly a member of the Mississippi State Medical Association; died at his home in Holly Springs, January 15, from cerebral hemorrhage, aged 82.

Peter Ellsworth Triem, M.D. Hahnemann Medical College, Chicago, 1881; for many years a practitioner of Manchester, Iowa, and a member of the faculty of the College of Homeopathic Medicine of the State University, Iowa City; died at the home of his son in Seattle, Wash., December 31, aged 59.

Orlando Clark Irvin, M.D. Bellevue Hospital Medical College, 1881; a member of the State Medical Association of Texas; visiting physician to the Providence Hospital and Hotel Dieu, El Paso; for many years division surgeon of the Santa Fe System; died at his home, January 13, aged 62.

Edwin L. Yarletz, M.D. Eclectic Medical Institute, Cincinnati, 1874; district surgeon of the Union Pacific Railroad; chairman of the Western Nebraska District Pension Examining Board, and city physician of Lodge Pole; died at his home in that city, December 16, aged 58.

Frederick Samuel Buckingham, M.D. College of Physicians and Surgeons, New York City, 1871; a member of the American Medical Association; for many years a practitioner of law in New York City; died at his home in Lakewood, N. J., January 9, from angina pectoris, aged 60.

T. Norwood Watts, M.D. Eclectic Medical Institute, Cincinnati, 1887; a veteran of the Civil War; for two years clerk of Wabaunsee county, Kan.; and a resident of Alma for nearly thirty-five years; died at his home in Topeka, December 23, from pneumonia, aged 73.

Alfred Joseph Horowitz, M.D. Long Island College Hospital, Brooklyn, 1906; of New York City; died in a hotel in Newark, January 2, from the effects of cyanid of potassium, self-administered, it is supposed with suicidal intent, while suffering from melancholia, aged 28.

Howson White Cole, M.D. Jefferson Medical College, 1854; a member of the Medical Society of Virginia; surgeon in the Confederate service during the Civil War; thrice mayor of Danville; died at his home in that city, January 8, from senile debility, aged 79.

Francis E. Minshull, M.D. New York Medical College and Hospital for Women, New York City, 1893; of Brooklyn, N. Y.; for many years physician to the Women's Memorial Hospital; died in Galilee, Pa., December 23, from cerebral hemorrhage, aged 56.

Duke William Goodman, M.D. Tulane University, 1891; acting assistant surgeon U. S. P. H. and M.-H. Service at the United States Consulates at Bluefield, Nicaragua, and Port Limon, Costa Rica; died at his home in Mobile, Ala., January 11, aged 55.

Thomas J. Shaw, M.D. Rush Medical College, Chicago, 1880; for twenty years assistant demonstrator of anatomy and clinical assistant to the professor of gynecology in his alma mater; died at his home in Chicago, January 20, from senile debility, aged 68.

Dwight Reuben Bement, M.D. Eclectic Medical Institute, Cincinnati, 1878; a veteran of the Civil War; of Mount Ayr, Iowa; died suddenly in a livery barn in that city, January 10, from heart disease, after making a professional call, aged 70.

Joel Barnett Gresham, M.D. Medical College of the State of South Carolina, Charleston, 1845; for many years health officer of Clay county, Miss., and of West Point; died at his home in that place, December 30, from pneumonia, aged 85.

Fred Robert Disney, M.D. College of Physicians and Surgeons, Chicago, 1907; a member of the Oklahoma State Medical Association; formerly of Chicago; died at his home in Pocasset, Okla., December 25, from pneumonia, aged 31.

Henry J. Coleman, M.D. New York Homeopathic Medical College, 1861; of Lorman, Miss.; a surgeon in the Confederate service during the Civil War; died suddenly January 16, at his plantation home near Port Gibson, Miss., aged 77.

Frank E. Stipp, M.D. Louisville Medical College, 1894; a member of the Indiana State Medical Association, secretary of the Lawrence County Board of Health; and health officer of Bedford; died at his home, January 4, aged 37.

William Davis Harelson, M.D. Memphis Hospital Medical College, 1897; a member of the Louisiana State Medical Society and of the East Baton Rouge Parish School Board; died at his home in Comite, January 9, aged 40.

Gawn Shaw Cleland, M.D. University of Toronto, 1882; Trinity Medical College, Toronto, 1890; a member of the British Medical Association; died at his home in Riverdale, Toronto, January 3, from tubercular laryngitis, aged 51.

Otto Fikenscher, M.D. Barnes Medical College, St. Louis, 1897; of Sibley, Ill.; a member of the American Medical Association; died at the home of his parents in Lohman, Mo., January 6, from pneumonia, aged 37.

John Jethro Sherman, M.D. Rush Medical College, 1881; for forty-five years a practitioner of Marinette, Wis., and mayor of that city in 1896; died at his home, January 9, from hemorrhage of the stomach, aged 79.

Robert H. Grinstead, M.D. University of Louisville, 1853; for many years a practitioner of Glasgow, Ky.; died at the home of his daughter in Munfordville, Ky., January 15, from senile debility, aged 80.

M. Francis Leary, M.D. Tulane University, 1873; hospital steward in the Army during the Civil War and acting assistant surgeon for three years; died at his home in Gaylord, Kan., January 13, aged 63.

Emmanuel Church (license, West Virginia, years of practice, 1870); for nearly 50 years a practitioner of Wyoming county, W. Va.; died at his home in Pineville, October 26, from heart disease, aged 70.

Theophilus M. Lewis, M.D. University of Louisville, 1856; formerly of Stanford, Ky.; died in the Eastern Kentucky Hospital for the Insane, Lexington, December 26, from senile dementia, aged 79.

English John Warth, M.D. Bellevue Hospital Medical College, 1879; for many years a practitioner of Nevada, Mo.; died at his home in Price, Utah, December 26, from arteriosclerosis, aged 77.

John Bogardus Hill, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died at his apartments in Boston, December 9, from cerebral hemorrhage, aged 82.

Joseph A. McFerren, M.D. Jefferson Medical College, 1847; formerly a member of the Delaware State Medical Society; died at his home in Laurel, Del., January 8, from senile debility, aged 82.

Jesse Lee Worley, M.D. Eclectic Medical Institute, Cincinnati, 1877; formerly a councilman of Washington, Ohio; died at his home in that city, January 6, from cerebral hemorrhage, aged 58.

Andrew Jackson Davis, M.D. United States Medical College, New York City, 1883; of Roxbury, Boston; died at his home in Watertown, Mass., January 13, from senile debility, aged 83.

B. H. Padgett, M.D. Medical College of the State of South Carolina, Charleston, 1881; warden of Walterboro, S. C., for several years; died at his home, January 9, from pleurisy, aged 53.

George Edwin Allen, M.D. Medical School of Maine, Brunswick, 1883; a member of the Massachusetts Medical Society; died at his home in Haverhill, January 8, from myocarditis, aged 46.

Edwin Hinckley (license, Washington, registration, 1887); of Toledo, Wash.; died at the Western Washington Hospital for the Insane, Fort Steilacoom, January 2, from uremia, aged 74.

Charles Benjamin Hollifield, M.D. University of Louisville, 1891; of Port Arthur, Texas; while making a professional call in that city, January 13, died from angina pectoris, aged 43.

Sidney Mosher (license, Iowa, 1887, 25 years practice); a physio-medical practitioner of Sioux City for nearly thirty-five years; died at his home January 12, from heart disease, aged 74.

John Drake Chambers, M.D. University of Michigan, Ann Arbor, 1874; a pioneer practitioner of Fort Wayne, Ind.; was found dead in his office, January 13, from pericarditis, aged 65.

Edward H. Horner, M.D. University of Pennsylvania, 1855; surgeon of volunteers during the Civil War; died at his home in Turbotville, Pa., January 10, from senile debility, aged 78.

Flora S. Gleason, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1882; died at her home in Corona, Cal., January 7, from angina pectoris, aged 59.

James Lockhart, M.D. University of Nashville, 1858; surgeon in the Confederate Service during the Civil War; died at his home near Advance, Mo., January 9, aged 83.

Benjamin Franklin Syman, M.D. Denver and Gross College of Medicine, 1906; of Denver; died in that city, January 12, after an operation for appendicitis, aged 25.

Joseph Freeman Thompson, M.D. University of Virginia, Charlottesville, 1889; died at his home in Lexington, Ky., November 21, from heart disease, aged 42.

Edwin A. Harris, M.D. Atlanta (Ga.) Medical College, 1887; a member of the Medical Association of Georgia; died at his home in Midville, January 11, aged 42.

Gabriel F. M. Cummings, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; died at his home in Rockmart, Ga., January 8, aged 49.

John Baptist Knoebel (license, Ill.); a practitioner for nearly fifty years; formerly of Highland, Ill.; died at his home in Manitou, Colo., January 1, aged 77.

A. C. Edwards, M.D. University of Louisville, 1857; one of the oldest practitioners of Meridian, Miss.; died at his home January 10, from paralysis, aged 80.

Russell P. Pelton, M.D. Western Reserve University, Cleveland, 1893; died at his home in Vermilion, Ohio, January 9, from pneumonia, aged 41.

William Alva Walton, M.D. Vanderbilt University, Nashville, 1881; died at his home in Henrietta, Tenn., January 1, from dropsy, aged 55.

Julius O. Dorsey, M.D. University of Maryland, 1863; died at his home near Parker's Landing, Md., January 4, from pneumonia, aged 67.

Abram C. Moore, M.D. Starling Medical College, Columbus, 1850; died at his home in Wyoming, Cincinnati, January 7, aged 83.

William Henry Dent, M.D. Miami Medical College, Cincinnati, 1890; died at his home in Glenwood, Ind., January 4, aged 42.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.
NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.
NEW YORK: Albany, February 1-4. Chief of Examinations Division, Dr. Charles F. Wheelock.
WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Simple Refraction Required in Vermont

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, says that the board voted Jan. 11, 1910, not to receive for examination after Jan. 1, 1911, any applicant who has not received instruction in simple refraction.

Indiana Board Adopts Higher Requirements

Word has just been received from Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, that at a meeting of the board, held January 12, it was voted to increase the minimum requirement for entrance to medical colleges to two years of collegiate study in addition to a four year high school education. This ruling will affect all students matriculating subsequent to Jan. 11, 1910, who expect to practice medicine in Indiana, and will be enforced for all applicants after January, 1914.

This action by the Indiana board indicates that they do not intend to discriminate against the graduates of their own state university medical school. There are now three state boards which have adopted the requirements of two years of collegiate work as the minimum requirement of preliminary education, thus supporting their state university medical schools, the other two being the boards of Minnesota and North Dakota. This makes seven boards requiring preliminary education in advance of high school work. Besides the three boards requiring two years of collegiate work there are four requiring one year, Connecticut, South Dakota, Colorado and Kansas.

Connecticut Homeopathic November Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, November 9, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 3, all of whom failed. The following colleges were represented:

College	Year Grad.	Per Cent.
FAILED		
Hahnemann Med. College and Hospital, Chicago	(1909) 71.8,*	73.2*
Atlantic Medical College, Baltimore	(1909)	69*

* Failed also at July 1909 examination.

Idaho October Report

Dr. W. F. Howard, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, Oct. 5-6, 1909. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 44, of whom 27 passed and 17 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1906) 75; (1909) 80,	80.8
Rush Medical College	(1894) 76.5; (1896) 78.8; (1906) 86.8; (1907)	87.
Northwestern University Med. School	(1904) 88.8; (1909)	76.7
[illegible] geons, Chicago	(1905)	82.4
[illegible] rgeons, Keokuk	(1897)	76.3
[illegible] Louisville	(1901)	75
[illegible] geons, Baltimore	(1906)	80.1
[illegible]	(1907) 76.3; (1909)	83.5
[illegible]	(1904)	82.2
[illegible]	(1898) 75.6, 77.3; (1909)	76.5
[illegible] Kansas City	(1903)	80
[illegible]	(1904)	75.3
Starling Medical College	(1901)	75.3
Eclectic Medical Institute	(1900)	79.9
University of Oregon	(1909)	80.7
Medico-Chirurgical College, Philadelphia	(1898)	81
Chattanooga Medical College	(1903)	75
Queen's University, Ontario	(1909)	77.8
FAILED		
University of Colorado	(1890)	66.3
Bennett Medical College	(1907)	50.4
Northwestern University Med. School	(1876) 60.9; (1909)	71.5
University of Kansas	(1907)	66.4
Michigan College of Medicine and Surgery	(1898)	60.3
American Medical College, St. Louis	(1892)	43.6
St. Louis University	(1905)	46.4
Kansas [illegible] al College	(1909)	71.5
Woman' [illegible] as City	(1901)	71.6
Barnes [illegible] 72.9; (1907) 68.2;	(1908)	62.7
Long I [illegible]	(1876)	53
Eclectic [illegible] icinnati	(1897)	66.5
Tennessee Medical College	(1907)	45.3
University of Nashville	(1902)	62.3

West Virginia November Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the written examination held at Parkersburg, Nov. 9-11, 1909. The number of subjects examined in was 20; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 27, of whom 24 passed and 3 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	*(1908) 89; (1909) 90, 92,*	94
Howard University	(1907) 87,	87
Maryland Medical College	(1903) 88; (1909) 82, 87, 90,	90
Louisville and Hospital Medical College	(1908)	81
Hospital College of Medicine, Louisville	(1907)	86
University of Louisville	(1908) 81; (1909)	93
Baltimore Medical College	(1908)	84
College of Physicians and Surgeons. Batimore	(1908)	83
Leonard School of Medicine	(1909)	87
Medico-Chirurgical College, Philadelphia	(1905)	85
Western Pennsylvania Medical College*	(1907)	93
University of Pittsburg	(1909)	89
Ohio Medical University	(1902)	86
Chattanooga Medical College	(1909)	83
University of Nashville	(1909)	91
FAILED		
University of Louisville	(1908) 74; (1909)	78
Chattanooga Medical College	(1909)	77

* Now the University of Pittsburg, Medical Department.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

How Physicians Look to the Public

From time immemorial physicians have considered it one of their unquestioned prerogatives to lecture the public on the relation which exists or should exist between the medical profession and the laity. Turn about is not only fair play, but a very profitable form of exercise, since it is not only right but just that we should know how the people regard us and in what way we fail to satisfy them. Two articles recently published in the *British Medical Journal* on "The Relations of the Laity and the Medical Profession" by Mrs. Hodgkinson, editor of the *British Health Review* are, therefore, not only interesting, but may be read with profit by American physicians, as well as by our British brethren.

Mrs. Hodgkinson disclaims the need of apologizing for erroneous opinions "since mistakes are often highly instructive and candor offers an opportunity for criticism and enlightenment likely to be extremely useful to all concerned." Commenting on the changing attitude of the public toward the profession and the fact that the more far-sighted members of the profession have already recognized this change, she says: "The unreasoning part of the public—equally dissatisfied—betakes itself to the 'patent medicines' so admirably analyzed and expounded in a recent publication of the British Medical Association, and, in view of the sums thus spent, no one will, I think, contend that this is an inconsiderate body." Regarding the better informed minority which, she states, is acquainted with the advance which is taking place in the profession and conscious of the limitations of modern medicine, it, she says, "is convinced that its best hope lies in the recognition by profession and public of the fact that their relations must be progressive and therefore subject to change."

This admirable statement of the present case is worthy of serious consideration. The relations existing between the medical profession and the public are certainly changing and will continue to change. We cannot go back to the conditions of our forefathers, neither can we prolong indefinitely the present-day situation. Change and progress is sure to occur and it behooves us to foresee the change and adapt ourselves to it, rather than to ignore it or oppose it, and thereby to suffer.

Discussing the relations between the physician and the average man who, Mrs. Hodgkinson states, "is brought up in complete ignorance of the laws of health or the natural needs of his body," her first criticism is that the medical profession, a body of immense social and legal weight, has made no organized protest against the absence of sound training on health matters in the schools and that it has not attempted to establish clinics for the study of the criminal, feeble-minded, or insane, but has left to the laymen the work of pushing forward and in some cases of remedying such evils. Mrs. Hodgkinson draws an analogy from history in the failure of the clergy to take the lead in needed reforms: "In certain stages of history, ecclesiastical authorities, too, have refused their rightful position as leaders of reform, and the tide of vital affairs has ebbed and left them stranded. An example and a warning not to be neglected."

After commenting on the cynicism of public opinion, which considers that the physician's interest in the patient begins and ends with his disease, she continues: "The thinking laity believes that the time is approaching for more revolutionary methods and that there are measures, now denounced as socialistic, which would reconcile these conflicting interests and secure the doctor's pecuniary position on the health and not on the disease of the community." Treatment of symptoms instead of causes and lack of careful examination by physicians is also commented on. Mrs. Hodgkinson also holds that the medical profession "has blindly and almost unpardonably neglected the study of dietetics in health and disease." She also complains of the morbid dread of responsibility into which excessive specialization forces its devotees, using the history of the treatment of appendicitis in the last ten years as an illustration. Much more to the point is her criticism that extreme specialization works a hardship on those who are poor in purse, in illustration of which she gives the following: "A patient, having weathered through an intestinal operation, was tortured with facial neuralgia. In quavering tones, he mentioned the matter to the surgeon, and was blandly repulsed. 'My dear sir, I know no more about neuralgia than you do. You must call in a physician if you want advice.' But he could not, poor man, for the operation and the nursing home had absorbed all his small means, and he therefore endured the neuralgia as best he could until he left the house, and, hastening to the nearest chemist, provided himself with the best advertised bottle available. It wrought an almost immediate cure and, for aught I know, considerable future damage."

As a remedy for such conditions, Mrs. Hodgkinson suggests that some means be devised by which the surgeon and physician could cooperate, "arranging the financial boundaries between the high contracting parties" so as to insure to the patient the care to which he is entitled. "But," she asks, "need the specialist be quite so ignorant? Is it not partially a pose, or idleness, or hedging, or self interest?"

The second article is devoted to a discussion of the vexing question of fees, which she says she approaches with trembling, "well aware that our advisers must live." She begs to remind physicians, however, that patients also must live and in a double sense, where they are concerned. She frankly says that she considers surgical fees too high, positively declining as an offset "to waste space in eulogizing the charity of many medical men, as it needs no praise, for it is known and respected. But," she says, "suppose we imitate the unemployed and say: 'Curse your charity; what we want is a lower and more definite scale of fees.'" She particularly pleads for some kind of a standard, claiming that at present "Sir Pompey Partington may demand £150 for a snip which Mr. Cutler Walpole may willingly perform for half the money," and that it is impossible to tell when a patient enters the consulting room what drain may be made on his resources. The patient naturally wants to live and for the sake of his family if not for himself, wishes to be treated by the bes skill obtainable. With the present lack of standards and with almost unlimited variation in charges, a patient never know how much the unavoidable surgical treatment is going t cost him.

In comparison to the surgical fee which "must be paid too quickly," however, is that of the general practitioner "which is paid too slowly." Mrs. Hodgkinson makes a strong and sensible argument for physicians' bills regularly rendered and properly itemized, summing up the entire matter thus: "The thrifty public would certainly prefer bills more frequent, and above all, more detailed. Honestly, would not the profession prefer them also? And if not, why not?"

The weakest portion of the two articles is that devoted t the discussion of advertising. Here, as in almost all of the popular discussion of this subject, Mrs. Hodgkinson misses the point entirely, devoting herself to a consideration of the apparent inconsistency of the position of the profession on this question. This is not strange, since correspondence or conversation with any number of physicians will show that very vague ideas on this subject exist within the profession as well as without it. Yet the entire question can be summarized in a few words. The medical profession objects and has objected from time immemorial to any means of self-exploitation which is untrue or ill-bred. Its objection to the vast majority of advertisements of so-called "specialists" is that they are untrue and every competent physician knows that they are. The objection which the cultured physician has to the methods of the man who plasters his house with signs and mechanical devices to attract attention is that such methods are not those of a gentleman. Apply these two tests to the advertising problem and the entire situation is clarified. Mrs. Hodgkinson fears that the physician or surgeon who writes a book for the instruction of the public on hygiene is in danger of professional condemnation. This depends entirely on the purpose of the book and the manner in which it is written. If it is honestly intended for public education and not for self-exploitation, and if the statements therein are a truthful, unexaggerated summary of the proved and accepted knowledge of the profession on the subject, then there are no grounds for criticism, but only praise. The physician who writes a book for the public as a means of self-aggrandizement or to make himself prominent in the public eye, is insincere and therefore untruthful. Yet while this is true, Mrs. Hodgkinson's ideas on this subject are worthy of repetition: "Far from joining in the condemnation of those who attempt to enlighten us, we fail to understand why it should not be a test of what is best and greatest in the profession to be a successful teacher of the laity in matters which concern them. This is one of the functions of the true physician and one which the future will demand and to stigmatize it as self-advertisement, while permitting more indirect but more lucrative forms of advertisement savors of injustice, which finds no response from us."

All of which is perfectly true, provided the work is done sincerely, and to benefit the reader and not the writer.

Equally interesting are her forecasts. The ideal which she holds is state payment of the profession which "is bound to come, so excellent has been the work done by the medical officer of health, and so clearly are indicated the opportunities for that thoroughly organized and systematic campaign against disease so absolutely impossible under obtaining conditions." The conception of the physician as a state health-officer, while savoring of socialism to some, is yet deserving of careful consideration.

The comparison established here between the work of the state health officer and that of the private practitioner is also worth considering. Obviously, if the future brings about such a competition, the state health officer, armed with the authority and support of the state, will have a decided advantage over the private practitioner whose authority will be purely personal and who must earn his own living and collect his own fees. In the meantime, as Mrs. Hodgkinson says, the orthodox medical man is heavily handicapped. We do not often consider the additional fact, however, which she further emphasizes, that "this handicap reacts on the patient, who is courted far more than is good for him." It would be interesting to speculate on the possibilities afforded by the future, when physicians have increased and disease decreased to the point where a sick person will be eagerly sought after and solicited by a number of physicians. Particularly suggestive in the light of the recent experience of medical organization in this country, are her comments regarding medical education, with which she says the public mind is dissatisfied, believing that the average medical man "is either unable or unwilling to keep step with the progress of modern science, which affects his work more rapidly and profoundly than it perhaps does any other." As a remedy, she proposes compulsory postgraduate courses but admits that it is difficult to see how these could be adapted to the needs of the struggling practitioner and suggests the possibility of the organization of a state medical service which might be of assistance in this particular. Apparently, the idea of organization of the medical profession itself for its own improvement and for the solution of this and other problems does not occur to her as a possible solution.

No doubt the difference in political conditions in Great Britain is partially responsible for this since many matters can be uniformly regulated by Act of Parliament in Great Britain which cannot be so disposed of in this country. Mrs. Hodgkinson voices the spirit of the times as well as the hope of the future in her closing expression of belief that "the bonds which unite the profession and the public may and must be strengthened, since the future will differ from the past most materially in the fact that we shall not so much call on the physician to rescue us from the disastrous consequences of our own and others' ignorances and follies when the harm is done, as to instruct and safeguard us in the ways of health and right living."

That this is the task of the physician of the future, no one will deny. On the contrary, we will all agree with Mrs. Hodgkinson that the possibilities of such a future are infinite. A clear picture of the ultimate goal of the profession, however, does not in any way help to solve the perplexing questions of the present nor determine how the transitional stage shall be passed through, with the least possible discomfort to the individual physician and patient; or how, in order to gain the ultimate good, we can best follow the advice of Saint Paul, to "prove all things, hold fast that which is good."

Mrs. Hodgkinson's articles are most interesting, whether we accept all her conclusions or not, and the example of the *British Medical Journal* of giving space to such a criticism of the profession is to be commended.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
Bowling Green, Kentucky

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—Second Weekly Meeting

Surgery of the Liver

Injuries of the Liver: Character and extent of wounds. Symptoms. Treatment. Indications for laparotomy. Control of hemorrhage. Technic of suture of liver.

Abscess of the Liver: (a) Tropical, solitary, amebic, abscess. Diagnosis, septic symptoms, pain, enlargement of liver. (b) Pyogenic abscess. Multiple after suppurative pylephlebitis, appendicitis, etc. Single after injuries, wounds, ulcerations, etc. Surgical treatment. Indications for exploratory aspiration. Abdominal incision. Transpleural incision. Combined abdominal and transpleural incision.

Cirrhosis (Atrophic) of the Liver: History, age, hepatic facies, ascites, hemorrhages. Vessels maintaining "compensatory circulation." Treatment. Indications for surgical treatment. Paracentesis, laparotomy and epiplopexy; indications for each; technic of each.

Book Notices

Organic and Functional Ne[illegible] Allen Starr, M.D., Ph.D., LL.D., Sc.D., [illegible]ge of Physicians and Surgeons, The Med[illegible] University in the City of New York. [illegible] engravings and 29 plates in colors and monochrome. Third Edition. Price, $6. Philadelphia: Lea & Febiger, 1909.

In the present edition of this classical work the author has evidently studied with care the needs of both practitioner and student. He arranges his material in four parts. In the first division or general portion of the book methods of examination and diagnosis are fully discussed in conjunction with the necessary anatomy and physiology of the nervous system. The second part covers the great division of organic diseases. In part third functional diseases are given twice the space allotted to the same section in a former edition. The concluding (fourth) part considers diseases of the sympathetic nervous system in the light of recent work in this field.

As the reader opens the book and begins reading, he imagines that he is listening to the author's rugged class-room English—always precise and unadorned by any rhetorical flourishes. In the chapter on "Organic Nervous Diseases," one hears him at his best—in his chosen field. And still the reader is carried along by an unswerving interest until he reaches the chapter on "Functional Nervous Diseases," where he is rudely awakened to the consciousness that the author is on strange territory.

Two errors should be expunged from future editions: 1. On page 730, under the caption of the treatment of trifacial neuralgia the author refers to a new treatment by the injection of three minims of 90 per cent. of alcohol into the branch of the nerve affected. Fortunately, in a footnote, the reader is referred to an original article by Patrick, published in The Journal (Nov. 9, 1907, p. 1567) in which one can read that the dose is thirty minims of a 75 to 90 per cent. solution of alcohol. 2. On page 739, under Sciatica, is mentioned a new treatment with normal salt solution at a freezing temperature, of which 5 c.c. are injected perineurally. If the author has in mind the method practiced by Lange, Umber, Alexander, Schloesser, Schlesinger, and adopted by American neurologists, the dose given as 5 c.c. should read 50-90 c.c. In neurology as in general medicine, specialties have grown up within specialties. There are those who excel in the diagnosis of thoracic diseases; others, who are brilliant interpreters of obscure abdominal affections, and still others who can make most searching analyses of metabolic disorders. In the specialty of nervous diseases there is no neurologist living since Charcot, with the possible exception of Oppenheim in Germany, whose text-book writings bear the imprint of originality as do Starr's. The book as a whole, therefore, must be pronounced among the best in the English language.

The Causation of Sex. A New Theory of Sex Based on Clinical Materials. By E. Rumley Dawson, L.R.C.P., M.R.C.S., Fellow of the Royal Society of Medicine. Cloth. Pp. 196, with illustrations. Price, 6 shillings. London: H. K. Lewis, 1909.

The author's "theory of sex" was first presented to the Obstetrical Society of London in 1900. It is now worked out into a monograph of about 200 pages which contains a considerable collection of reports of various cases which form the clinical basis of the hypothesis. The theory is that the sex of the fetus is not due to the male parent, but depends on the ovary which supplied the ovum that was fertilized; and that a male fetus is due to the fertilization of an ovum from the right ovary and a female fetus is the fertilization of an ovum from the left ovary.

To show that the male parent does not influence the sex of the child a number of instances are given in which a woman has had only girls or only boys by two husbands, while other cases are given in which husbands have had children of different sexes by different wives. To prove that male fetuses are due to the fertilization of ova from the right ovary and vice versa, a number of cases are given in which male or female pregnancies, either intra-uterine or extra-uterine, were found to coexist with a large corpus luteum in the right or left ovary respectively. Cases of pregnancy after ovariotomy are also given to show the same fact.

Dr. Robert Field Library

Dawson meets the objection that sometimes children of both sexes are born after the removal of one ovary by assuming that such removal is not complete. Assuming an alternate action of the ovary the author forecasts, with 97 per cent. of success, the sex of the subsequent child by reckoning from the ovulation month of the last child to the tenth ovulation period prior to the expected birth of the coming child. Numerous examples are given from his own practice and from that of others. It follows that the production of sex at will must consist in avoiding attempts at fertilization in the months in which an ovum of the undesired sex is produced.

The author has presented his arguments well from his chosen standpoint. The theory lacks the foundation of cytologic and biologic studies, the absence of which leaves it somewhat unsatisfactory. The uniformity of favorable cases is also suspicious and leaves the reader in some doubt as to the thoroughness of the search of literature.

The Stereo-Clinic. By Dr. Howard A. Kelly, Baltimore, Md. Vol. I., Gynecologic Examination, Hypertrophy, Conglutination, Pessaries, Fibroma. 41 Stereos. Cloth. Price, $10.25. Vol. II., Examination of Bladder and Catheterization of Ureters, Dilatation and Curettage. 45 Stereos. Cloth. Price, $11.25. Vol. III., Perineal Tear, Pelvic Abscess, Dermoid Cyst, Parasitic Myoma, Dysuria, 42 Stereos. Cloth. Price, $10.50. Troy, N. Y.: The Southworth Co.

This work, one of the latest by the well-known author, consists of a series of stereograms or stereoscopic photographs illustrating various gynecologic operations, pathologic conditions and methods of making examinations.

It is recognized by all that the sense of sight is the one through which knowledge is most quickly and easily acquired. By means of these stereograms, Kelly has brought to the library of every surgeon the clinic room and the actual operation so that the various steps of the operation may be studied at leisure.

Instead of trying to catch a hurried glimpse of a rapidly performed operation, one may sit down and view the various steps with almost the realism of the operating-room. These stereograms with their almost perfect perspective are a great improvement over the ordinary illustration, however well the latter may be executed. As the stereograms are taken during the actual performance of the operation, the individuality of the operation is preserved as well as the various steps of the operation illustrated.

A careful study of the pictures with the apparatus furnished is like taking a postgraduate course. Each stereogram is accompanied by just enough text to bring out nicely the points desired to be emphasized.

The Principles of Hygiene. By D. H. Bergey, A.M., M.D., Assistant Professor of Bacteriology, University of Pennsylvania. Third Edition. Cloth. Pp. 542, with illustrations. Price, $3. Philadelphia: W. B. Saunders Co., 1909.

Sanitary science and hygiene have made enormous strides during the past few years, owing largely to the knowledge gained in the etiology of diseases. An impetus has been given by many new discoveries in this field to a more detailed study of conditions of the air, and this subject has been ably discussed in the first chapter. Following this in logical sequence are chapters on ventilation and heating, water-supply and sewage disposal. Perhaps no other branch of sanitary science has advanced as rapidly as these, to which the author does full justice.

Food and dieting are taken up from a modern point of view. Physiologic chemistry has advanced our ideas in this respect, and the new movement for pure food has contributed its share to a betterment. The discussions on milk and alcoholic beverages are rather short, but give the desired information as explicitly as possible in such limited space. Exercise, clothing, personal hygiene, etc., are considered in separate chapters.

Of special interest is the chapter on the causes of diseases, the discoveries in this line following each other with such rapidity that it is difficult to keep in touch with the progress of the subject. This problem is discussed most intelligently and as much information is given as the size of the book permits. Closely following are the chapters on disinfection and quarantine. Much attention has been given by sanitarians to these topics, especially to disinfection, and the opinions prevailing among experts are recorded by the author. The closing chapter on vital statistics, and an appendix add much useful information.

Surgical Diagnosis. By Alexander P[illegible] M.D., Professor of Clinical Surgery in the [illegible] College. Volumes I. and II. Cloth, [illegible] $1 per set. Three volumes in set. Sold in sets only. New York D. Appleton & Co., 1909.

It is seldom that one practices medicine or surgery in an of its branches long without realizing that a correct diagnosi is at once the most important as well as the most difficul part of the art, for when a correct diagnosis of a case ha once been made, the most approved treatment is usually no difficult to outline.

The title of this work is too limited, for it deals not onl with the question of diagnosis, but contains much that pertains to pathology and occasionally to treatment. This coul scarcely be otherwise, however, in a work as comprehensiv as this and this feature but adds to its value, for it is almos impossible for one to think of diagnosis without at the sam time having pathology in his mind.

There are to be three volumes when the work is completed; Volumes I and II are now ready. Volume I treats of wounds and their diseases; diseases of the soft parts and of the bones; tumors; fractures and dislocations; syphilis; the *x*-rays; the head and neck; thorax and breast and abdomen in general; the peritoneum and injuries of special abdominal organs.

Volume II treats of injuries and diseases of the abdomen and of its contained viscera; the rectum; injuries and diseases of the kidney, the bladder, the prostate, the urethra, penis, seminal vesicles, scrotum, testes and spermatic cord.

The work is profusely illustrated in both color and black and white with almost entirely new cuts. Each volume is provided with an index of authors as well as of subjects.

This excellent work will certainly find favor with all who may read it.

The Practice of Anesthetics. By Rowland W. Collum, L.R.C.P., M.R.C.S., Anesthetist to St. Mary's Hospital, Paddington, and General Surgical Technique, by H. M. W. Gray, M.B., C.M., F.R.S.C., Surgeon and Lecturer on Clinical Surgery, Royal Infirmary, Aberdeen. Edited by James Cantlie, M.A., M.B., C.M., F.R.C.S., Surgeon Seamen's Hospital Society. The Medico-Chirurgical Series No. 1. Cloth. Pp. 382, with 39 illustrations. Price, $3.00 net. New York: William Wood & Co.

This book is one of a series in which medical and surgical conditions are dealt with conjointly. This volume takes up anesthesia and general surgical technic. Part 1 contains a brief review of the history of anesthesia, a consideration of the chemical properties of the various anesthetics, the physiology of anesthesia, preparation of the patient, the selection of the anesthetic for special cases, concluding with the methods of administration of the various drugs and mixtures used, and the after-care of the patient. In Part 2 the author discusses the personal preparation of the surgeon and assistants, the operating room and its equipment, ligatures, suture material, etc., preparation and after-care of the patient, operations in private homes, responsibilities of the surgeon, and common surgical operations which may have to be undertaken by the general practitioner. While not pretentious, the book is full of practical interest and is to be commended.

Those Nerves. By George Lincoln Walton, M.D., Consulting Neurologist to the Massachusetts General Hospital. Cloth. Pp. 202. Price, $1. Philadelphia. J. B. Lippincott Co., 1909.

This book, small enough to go in one's pocket, is dedicated to "Those Who Need It." One is surprised as well as amused in turning over its pages to find how many of the keen little paragraphs can be applied to one's own mental and physical states. In a day when there is so much loose talk about the power of the mind over the body, it is refreshing to read something practical and sensible on the power of the individual over the mind. The object of the author, as stated in the introductory chapter is to "promote such peace of mind as may make for health as well as for happiness. In other words, like vaccination, pure milk and disinfection, it aims to prevent." Self-control, freedom from annoyance on account of irritating surroundings, the mental dangers of isolation are discussed, as well as some mental traits for which the author has had to invent a terminology which is none the less easily recognizable. Who, for instance, does not know at the first glance what is meant by "side-trackability," "character-leakage," or "magnification of the unessential?" Two chapters are devoted to various obsessions in which almost any one can find some of his favorite peculiarities graphically but sympathetically portrayed.

Medicolegal

The Medical Practice Law in Oklahoma After the Territory Became a State

The Criminal Court of Appeals of Oklahoma says, in State vs. Harmon (104 Pac. R., 370), that the territorial laws relating to the practice of medicine were not extended and did not remain in force in the state of Oklahoma by reason of section 39, article 5, of the Constitution, which provides that: "The legislature shall create a board of health, board of dentistry, board of pharmacy, and pure food commission, and prescribe the duties of each. All physicians, dentists and pharmacists now legally registered and practicing in Oklahoma and Indian Territory shall be eligible to registration in the state of Oklahoma without examination or cost." This provision of the Constitution was made effective by chapter 70a, article 1, page 791a, of the session laws of 1907-'08, the same being entitled: "An act to define and regulate the practice of medicine, to create a board of medical examiners for the examination and licensing of physicians and surgeons, and to prescribe their qualifications; to provide for their proper regulation, and to provide for the revocation of their license; to require itinerant venders to procure a county license, and to fix suitable penalties for the violation of this act, and repealing laws and parts of laws in conflict herewith." This law was approved June 12, 1908, and became effective on the 24th day of August, 1908.

Construction and Validity of Statute Relating to Vaccination of School Children—"Successful Vaccination"

The Supreme Court of Washington holds, in State vs. Shorrock and others (104 Pac. R. 214), that a provision that the boards of directors might make vaccination a necessary condition precedent to attendance on the public schools was clearly within the title of the act of 1897, entitled "An act to establish a general uniform system of public schools in the state of Washington," etc. It says that this provision stands on the same plane as the provisions contained in the act for the exclusion of those afflicted with infectious or contagious diseases, or who reside in houses wherein such diseases are prevalent. In other words, it defines the class of persons who may be permitted to attend the schools created by the act. It is therefore germane to the general subject.

Nor does the court consider the provision in question repealed by the subsequent statute providing for the compulsory education of children. If the latter statute required compulsory attendance on the public schools, the two statutes taken together might require compulsory vaccination, but even in that case there would be no repeal of the former by the latter. The legislature has power to require all minors to attend the public schools, and to require them to be vaccinated before so attending.

Neither is the statute void because it makes no allowance for those physically incapable of vaccination. It is not to be presumed that the legislature intended to require, as a condition of its right to attend the public schools, the vaccination of a child whose condition of health is such that the operation would endanger its life, or injuriously affect it mentally or physically. It is presumed that exceptions were intended in favor of such individuals; and, if the officers having in charge the execution of the statute refuse to recognize an exception in such a case, the courts can be appealed to, to compel such recognition.

A contention that the staute is too indefinite to be capable of enforcement was founded on the fact that it requires "successful vaccination," and no definition of the term is furnished by the statutes. But here, again, the court thinks that the rule of common-sense construction can properly be invoked. The board of directors in question construed the statute to mean that a person was successfully vaccinated when the customary reaction was obtained by the operation, or when three operations had been performed without obtaining reaction. Of course, if the customary reaction follows the operation, there is no question concerning the success of the operation. But if no reaction follows three several operations, it is evident that the individual cannot be vaccinated, and such individual can be held to be either successfully vaccinated, or as one not included within the general language used in the statute. To allow individuals to attend the schools who from their condition of health or causes cannot be successfully vaccinated is not a violation of the statute. This is but a recognition of an exception intended by the legislature, but which was not provided for because not foreseen.

The court finds no objection to the statute itself, or to the manner in which it was being enforced.

Notice Necessary to Inquisitions of Lunacy—Force of Physicians' Certificates

The Supreme Court of Vermont says, in ex parte Allen (73 Atl. R., 1078), that, at common law, an insane person may be temporarily restrained without legal process, and, if need be, in an asylum, if his going at large would be dangerous to himself or to others, preliminary to the institution of judicial proceedings for the determination of his mental condition, and such a restraint does not violate any constitutional provision. When, however, the confinement is permanent in nature, the person thus confined is deprived of his liberty which, in order to be lawful, must be in pursuance of a judgment of a court of competent jurisdiction after such person has had sufficient notice and an adequate opportunity to defend. It is no answer to say the person is insane and consequently notice to him will be useless, for that is assuming as a fact the very thing in question, and which is presumed to be otherwise until proved.

Such notice and opportunity are required by the Constitution of Vermont wherein it reads: "Nor can any person be justly deprived of his liberty except by the laws of the land, or the judgment of his peers." And by the fourteenth amendment to the federal Constitution that no state shall "deprive any person of life, liberty or property, without due process of law."

The Vermont statute contains no specific provision for notice to the alleged insane person of the institution of proceedings for a court of inquiry to ascertain whether he shall be removed to the hospital for the insane as a state charge. But the provisions for a court of inquiry should be construed in the light of the requirements of the principles of the common law, and so construed the insane person is entitled by law to proper notice of such proceedings and an opportunity to be present and defend. That is all that due process of law requires, and consequently the statute in this respect is *not unconstitutional*.

Just what force as evidence the statute contemplates that the physicians' certificate shall have in hearings of this character is a question not entirely free from doubt. The examination by the physicians is made under certain provisions of the statute, but it is not of a public nature and made under competent authority on behalf of the public to ascertain a matter of public interest. The certificate is not, therefore, a return of the physicians' proceedings and findings to a court to be there acted on in affirmance or disaffirmance, as is generally done when an investigation has been made by an *inquisition* by virtue of competent authority. Yet an inquisition of lunacy is only presumptive evidence of insanity, and is traversable as a matter of right by the alleged lunatic, and may be sent to a court of common law to be tried by jury. And the statute respecting the use of the certificate may reasonably be so construed as to make it, like an inquisition of lunacy when traversed, prima facie evidence of the person's insanity.

In this case the court finds that the proceedings of the court of inquiry questioned were a nullity, and that the confinement of Lydia Ann Allen in the state hospital for the insane on the order of that court was illegal, wherefore she would be discharged from such confinement on said order, yet, if she was insane and her going at large would be dangerous to herself or to others, she would not be set at liberty on habeas corpus. In such circumstances it was the duty of the court and within its common-law power resting on public necessity to restrain her until resort could be had to regular and orderly means to place her under permanent legal restraint.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

January 15

1 *Pellagra at the Peoria State Hospital, Peoria, Illinois. J. F. Siler and H. J. Nichols, U. S. Army.
2 Practical Method of Obtaining the Duodenal Contents in Man M. Einhorn, New York.
3 Eye Troubles of Early Life. J. W. Avery, New York.
4 *Interpretation of Clinical Hearing Tests According to the Author's Sensitive Hair Theory of Sound Perception. W. S. Bryant, New York.
5 *Letters to a Neurologist. J. Collins, New York.

1. **Pellagra in Illinois.**—Of 2,150 inmates examined by Siler and Nichols at the Peoria institution, the majority of whom have been almshouse and asylum inmates for many years, 175 were pellagrous during the summer of 1909. No physicians, attendants, or employees were affected. About 70 per cent. of the patients had suffered from previous attacks and pellagra has been prevalent at least 4 years. The average age of the patients was 50 years; the sex distribution was about equal. Attacks were mild (skin symptoms, mild digestive tract symptoms without constitutional reaction) and severe (marked skin and digestive tract symptoms with pronounced toxemia). A diagnosis of pellagra is not warranted in absence of skin symptoms. The symmetry of skin lesions was a most striking feature. When bleb formation occurred the death-rate was high. Digestive tract symptoms were not present in all cases. In some cases diarrhea and stomatitis could be attributed to bad teeth, and infection with amebas and flagellates, but in other cases, the constitutional symptoms pointed to some additional specific poison. Patellar and plantar reflexes were abnormal in about three-fourths of the cases, usually increased. It was impossible to determine the exact extent of mental disturbance attributable to pellagra, as all patients were insane before the disease was recognized. The patients developed no suicidal tendencies. In mild cases the patients recovered without therapeutic aid. In severe cases they were not much benefited by Fowler's solution, atoxyl or thyroid tablets. Examination of the feces showed in 84.8 per cent. of the cases protozoal infection (amebas, flagellated and encysted forms). These protozoal infections account in part for the intestinal symptoms and are believed to be a predisposing factor. In 18 autopsies, well-marked ulcerations of the colon were found in 12 cases, and folliculitis occurred in all. No other organ showed any striking alteration. Cultures of blood, spinal fluid and spleen pulp were uniformly negative. The disease impressed the authors as an intoxication rather than an infection. Not more than two ounces of corn were eaten daily; no evidence was obtained of the use of spoiled corn. The possibility of an intoxication from bacterial action on corn products in a damaged intestine is considered the most promising field for study.

4. **Interpretation of Clinical Hearing Tests.**—In diseases of the cochlea, when there is only a quantitative impairment and not loss of high tone perception, Bryant maintains that the lesions of the cochlea must be localized. When, however, there is a total loss of perception of high tones from cochlear involvement, the author interprets this absence of high tone perception as due to a lesion which is diffused throughout the extent of the scala media.

5. **Letters to a Neurologist.**—Collins supposes himself to receive a letter from a worldly, selfish woman, who has exhausted all sorts of pleasure, and now, at 43, finds herself a prey to *ennui*, supposing herself to be sick. He answers her by trying to direct her to live for others instead of herself, to endeavor to aid some of the great endeavors of the day to better the conditions of the masses, and in this to find a happiness that the mere pursuit of pleasure cannot bring.

Boston Medical and Surgical Journal

January 13

6 Test Diet, Nitrogen and Sulphate Partitions as an Aid to Diagnosis in Intestinal Disturbances. J. M. Lynch, Hoboken, N. J.
7 Antityphoid Inoculation Conducted by Massachusetts General Hospital. L. H. Spooner, Boston.
8 Reproduction of Pain as a Means of Making Differential Diagnosis. H. T. Hutchins, Boston.
9 Opsonic Therapy in Pyorrhea Alveolaris. L. S. Medalia, Boston.
10 Crotalin; An Improved Method for its Administration. T. J. Mays, Philadelphia.

New York Medical Journal

December 15

11 *Presence of Acid-Fast Bacteria in Distilled Water. R. C. Rosenberger, Philadelphia.
12 Present Status of United States Army Nurse Corps. C. Lynch, Washington, D. C.
13 Private Nurses and Nursing: Recommendations for their Betterment. T. E. Satterthwaite, New York.
14 Successful Experiment in Educating Efficient Nurses for Persons of Moderate Income. W. O. Stillman, Albany, N. Y.
15 An International Educational Standard for Nurses. Mrs. H. Robb, Cleveland.
16 Factors of Mortality in and the Complications of Gastroenterostomy. C. G. Cumston, Boston.
17 *Bacterial Vaccines in Acute Rheumatism. G. A. Persson, Mt. Clemens, Mich.
18 Educational Responsibilities of a Milk Depot. I. S. Wile, New York.
19 Physiologic Gastric Juice in Treatment of Tuberculous Diseases. J. D. Nagel, New York.

11. **Acid-Fast Bacteria in Distilled Water.**—Rosenberger is still of the opinion that tubercle bacilli are present in the blood in every case of tuberculosis of the lungs or other viscera. If, he asks, tubercle bacilli are not in the blood, how would they appear in the urine or feces without demonstrable lesions either of the kidney or of the intestine? The demonstration of tubercle bacilli in the blood is not a procedure that can be indulged in by every student, and it is not for the man who "wants to come into the laboratory to do a little work," but for well-trained bacteriologists. Rosenberger repeatedly examined distilled water under many varying conditions for acid-fast bacteria, but failed to find them. He questions the value of the work done by men who have reported adversely on the presence of tubercle bacilli in the blood.

17. **Vaccine Treatment of Acute Rheumatism.**—Persson reports 68 cases of acute rheumatism in which the opsonic treatment has been employed. The bacterial vaccine which was used in all these cases was prepared in the following manner: A desired micro-organism was grown in a media consisting of 80 parts of sea water with a specific gravity of 10.15 which had been sterilized by filtration, and 20 parts of a 5 per cent. solution of neucleanic acid, allowed to develop in the incubator for 48 hours, when proper dilution with the sterilized sea water was made to form a suspension of 20,000,000 germs to the cubic centimeter. It was then exposed to thermal death point for 30 minutes. Each patient received a daily inoculation of 1 c.c. or 20,000,000 germs. The results obtained were as follows: *Streptococcus rheumaticus* infection, 47 patients; cured, 32; improved, 8; and unimproved, 7. *Staphylococcus pyogenes aureus* infection, 14 patients; cured, 3; improved, 7; unimproved, 4. Colon bacillus infection, 7 patients; cured, 3; improved, 1; and unimproved, 3.

Lancet-Clinic, Cincinnati

January 8

20 *Stricture of the Male Urethra. E. O. Smith, Cincinnati.
21 *Acute Dilatation of the Stomach. E. Walker, Evansville, Ind.
22 Life Insurance Examinations with Reference to Urinalysis and Tuberculin Reactions. C. W. Leigh, Chicago.

20. **Stricture of Male Urethra.**—According to Smith, almost every stricture which is secondary to specific urethritis is amenable to gradual intermittent dilation treatment. The first principle to be observed in the introduction of any instrument into the urethra is that no force is to be employed. Internal urethrotomy he regards as unsafe, and says it should never be attempted by the unskilled and inexperienced. External urethrotomy is seldom indicated in other than traumatic strictures.

21. Abstracted in THE JOURNAL Nov. 20, 1909, p. 1770.

Virginia Medical Semi-Monthly, Richmond

December 10

23 What the Practici[illegible] Can Do in the Prevention of Typhoid. L. L. [illegible] D. C.
24 Tuberculin in Pul[illegible] W. T. Little, Canon City, Colo.
25 Four Hundred Consecutive Abdominal Operations. C. E. Robins, Richmond.

26 Importance of an Early Diagnosis in Genitourinary Tuberculosis. F. R. Hagner and H. G. Fuller, Washington, D. C.
27 Case of Kidney Congenitally Misplaced in the Pelvis. J. W. Henson, Richmond.
28 Case of Hydramnion. J. M. Williams, Disputanta, Va.
29 Causes, Symptoms and Differential Diagnosis of Pyosalpinx. B. M. Anspach, Philadelphia.

Kentucky Medical Journal, Bowling Green

December 15

30 Fracture of the Patella. S. C. McCoy, Louisville.
31 Non-Valvular Diseases of the Heart. J. B. Marvin, Louisville.
32 *Exophthalmic Goiter; Operative Treatment; An Improved Technic. J. R. Wathen, Louisville.
33 Microscopic Examination of Specimens Removed and Conclusions Based on These Examinations and the Recent Work of Others. E. F. Horine, Louisville.

32. **Exophthalmic Goiter.**—The technic employed by Wathen is said to possess the two most important requisites, i. e., rapidity and safety. The patient's head is elevated, and a large sand-pillow is placed under the shoulders and neck. This position throws the chin upward and places the tissues of the neck on the stretch. The skin is grasped in the median line, with two pairs of Jacobs' volsella forceps and traction is made upward. With a large pair of blunt-pointed scissors the skin and platysma muscle are incised; then, with constant upward traction, the incision is continued around the neck as far as is needed, which is usually to the edge of the external jugular vein on either side. This method of elevating the skin by traction with the forceps is much safer, as one is not so liable to cut the veins and arteries lying below; it is very rapid and allows the use of scissors which cause less hemorrhage of the smaller arteries when cut. The two large flaps are now dissected up to above the hyoid bone and down to the sternum. The ribbon muscles are freed in the middle line, and the sternohyoid muscle of each side is double clamped high up and cut, the forceps being left on to act as retractors. Next, the broad and thin sternothyroid muscle is separated from the gland capsule and divided on both sides.

The capsule is then opened and the tumor grasped with large, three-pointed volsella forceps, and traction is made in an upward and opposite direction. With gauze the capsule is wiped off the gland, artery forceps catching the capsule at several points. As the arteries and veins appear they are double clamped and cut high up on the tumor, so as to avoid injury to the recurrent laryngeal nerve, or cut off the arterial branches to the parathyroids. As early as possible the superior thyroid artery should be located and clamped, as this is the major portion of the arterial supply. The constant upward traction on the tumor causes the vessels to stand out between the capsule and the tumor, and also prevents venous hemorrhage.

After the vessels have all been clamped and the tumor freed, except at the isthmus, a very large forcep is placed on this point, and, as near as possible, the tumor is cut V-shaped from the isthmus. Then the clamp is gradually loosened and any bleeding vessels in the pedicle are ligated. Next, the edges of the cut gland are whipped over the catgut and in this way the secretions, as well as the hemorrhage, are stopped. Next, each artery or vein held in the forceps is tied with catgut or celluloid yarn, as the latter is more rapid and less liable to slip than is catgut. A stab-wound is then made in the suprasternal notch, and a small rubber tube, and by its side a small piece of gauze, are introduced. At this stage of the operation, the cavity is repeatedly flushed out with normal saline. The anesthetist then allows the patient to come out somewhat from under the anesthetic, and the straining and nausea test test the ligatures. This is, in Wathen's opinion, one of the most valuable points in his technic, as on more than one occasion he has seen even the celluloid yarn give way and much hemorrhage ensue. The ribbon muscles are then sutured and the skin to which the platysma is attached, is sutured with a subcuticular catgut suture.

Ohio State Medical Journal, Columbus

December

34 Treatment of Syphilis by Deep Injections. A. Ravogli, Cincinnati.
35 Therapeutic Test of Syphilis. J. Metzger, Toledo.
36 Hernia. W. D. Hamilton, Columbus.
37 Question of Operation in Fractures at the Base of the Skull. F. E. Bunts, Cleveland.
38 Cyclic Vomiting [illegible] Cincinnati.
39 Hygienic Aspec[illegible] 'ater Supply Incident to Slack Water [illegible] 'arkhurst, Steubenville.
40 The Delicate Cl[illegible] Cincinnati.
41 Case of Hypertrophy of the Palpebral Conjunctiva. F. W. Blake, Columbus.

Pennsylvania Medical Journal, Athens

December

42 Limitations of Mental Therapeutics in the Treatment of Disease. C. W. Burr, Philadelphia.
43 *Sanitary Science and Social Evil—*Social Hygiene.* F. W. Tomkins, [illegible]
44 *Social Hygie[illegible]
45 *Ocular Mani[illegible] 'licating Aural Disc[illegible]
46 *Brief Histor[illegible] h Suggestions as [illegible] Philadelphia.
47 *Reduction of Temperature in Children without the Use of Drugs. W. C. Hollopeter and H. B. Mills, Philadelphia.
48 *Management of Typhoid, with Special Reference to Diet. W. E. Robertson, Philadelphia.
49 **Importance of* Considering the Arterial and Venous Systems in Diseases of Other Organs. H. A. Hare, Philadelphia.
50 *Blood Pressure Past Middle Life in Diagnosis, Prognosis and *Treatment.* J. H. Barach, Pittsburg.
51 Aortic Stenosis. H. D. Jump, Philadelphia.
52 *Analysis of 63 Cases Exhibiting Xiphisternal Crunching Sound. M. Solis-Cohen, Philadelphia.

43. Abstracted in THE JOURNAL Oct. 9, 1909, p. 1216.

44. Abstracted in THE JOURNAL, Oct. 16, 1909, p. 1321.

45, 46. Abstracted in THE JOURNAL, Nov. 6, 1909, pp. 1588, 1590.

47. **Reduction of Temperature in Children.**—The most satisfactory antipyretic for young children, according to Hollopeter and Mills, is cold. This may be in the form of an ice bag or a sponge bath given cautiously. By means of the ice cap or sponging one is able to calm a nervous irritability, and this is done by literally bleeding the children in their own vessels. The routine method that the authors follow in managing the feverish child, is the manipulation of the ice cap and hot-water bag. The ice bag is placed to the head and the hot-water bag to the feet. Of course this has the effect of equalizing the circulation in the most satisfactory way. This is all preliminary to the sponging.

The authors supplement the ice bag and the hot-water bag, if the child's temperature is not reduced in a few hours, by cold sponging. This is accomplished by removing all the clothing, except the diaper, and placing the child on a blanket and sponging for 10 or 20 minutes. This will allay the nervous tension and reduce the temperature, and is more satisfactory than any other anodyne, especially if done in a gentle manner. In a fretful or nervous child it is well to commence with water at the temperature of from 90 to 95 F. and to sponge the body very carefully, commencing at the face and gradually going down the anatomy until the whole body has been covered, and then allowing a little evaporation or letting the child be exposed, except its extremities. The second step is to take a basin containing water at 80 F. and proceed in the same way as at first, finally using a basin containing water at 70 F. This method of procedure has been less trying to the child and favorable results are reached earlier. If the child is irritable or excitable, the whole body should not be exposed at one time, during the bath, but should be bathed in instalments until the entire body has been covered in full.

Another therapeutic method of great importance in pediatric practice is colonic irrigation. Another valuable adjunct in the management of feverish children, and one now being strongly advocated throughout the medical world, is that of permitting the entrance of plenty of fresh air into the sickroom regardless of the temperature of the patient, the only precaution necessary being the avoidance of draughts, which may readily be accomplished by the intelligent use of screens. Finally, the care of sick children should include treatment in the open air.

48. **Management of Typhoid.**—Concerning the reduction of fever, Robertson says that just as in health one runs a normal daily curve, so in disease, the temperature curve follows a course according to the nature of the infection. If the temperature be 105 F. or over, it is justifiable to give a prolonged sponge or a dose of from 5 to 10 grains of aspirin. It is Robertson's practice not to have his patients disturbed for any purpose from 11 p. m. to 7 a. m. During the day food is

given every four hours. One-half hour after each meal dilute hydrochloric acid is administered in doses of from 20 to 60 minims, gauged by the degree of dryness of the tongue. Patients treated in this way, he asserts, remain well-nourished and do not present the usual hebetude of typhoid. In fevers, hydrochloric acid is diminished or absent; hence the physiologic need is supplied; this, with carbohydrates will prevent tympany. The author's diet list is given. Robertson found that typhoid carriers are rarely met with after the above plan is adopted.

49, 50, 52. Abstracted in The Journal, Nov. 6, 1909, p. 1507.

Bulletin Johns Hopkins Hospital, Baltimore

December

53 Pleural and Pulmonary Secondary Osteosarcoma. E. R. LeCount, Chicago.
54 Aretaeus the Cappadocian. E. F. Cordell, Baltimore.
55 Results Obtained, and Features of Interest, in 215 Consecutive Cataract Extractions. S. Theobald, Baltimore.

American Journal of Surgery, New York

December

56 [illegible] t of Retrodisplacement of the Uterus. [illegible] iladelphia.
57 *[illegible] in Women: Especially Malignant Growths. B. C. Hirst, Philadelphia.
58 Surgical Treatment of Hemorrhage Complicating Pregnancy. E. P. Davis, Philadelphia.
59 Diagnosis and Treatment of Extrauterine Pregnancy. P. B. Bland, Philadelphia.
60 Polypoid Growths and Rectal Polypi: Report of a Recent Case of Fibroma, Undergoing Myxomatous Degeneration. L. H. Adler, Philadelphia.
61 *Relation of Rectal Disesaes to the General Nervous System. E. Laplace, Philadelphia.
62 *Roentgen-Ray Treatment of Malignant Disease. C. L. Leonard, Philadelphia.
63 *Conservation of the Middle Turbinate. W. A. Hitschler, Philadelphia.
64 Present Status of the Cataract Operation. W. C. Posey, Philadelphia.
65 Cyclodialysis. W. L. Pyle, Philadelphia.
66 Postoperative Treatment of Urethrotomy—Internal and External. H. M. Christian, Philadelphia.
67 *Cancer of Stomach: A Statistical Study. J. A. McGlinn, Philadelphia.

57. **Tumors of the Urethra.**—Hirst says that the only practical deduction to be drawn from a study of these growths is the necessity of their early and complete removal. If a careful examination after removal shows benignancy, so much the better for the patient as regards recurrence. Benign urethral growths are at least provocative of some symptoms and there is always the possibility of malignant degeneration if they are neglected. If they prove to be malignant, they could not have been removed too early or too completely.

61. **Rectal Diseases.**—Laplace shows the intimate connection of the sigmoid and rectum, with the sympathetic and cerebrospinal nervous sustem; how by various rectal disorders the nervous system becomes thoroughly demoralized, predisposing the patient to many reflex troubles; to demonstrate the great absorbing power of the rectum, for gases and fluids, and thereby to show the toxic influence of constipation on the general system, in weakening the autoprotective powers of the economy, the opsonins and phagocytes.

62. **Roentgen-Ray Treatment of Malignant Disease.** — Leonard is convinced that the Roentgen rays have demonstrated their efficiency as a remedial agent in the treatment of malignant disease, not only in superficial epithelioma, but also in the graver forms of malignancy. Their established potency renders them a valuable supplemental agent to radical operation by destroying the lymphatics and any residual foci of malignancy. Therefore, every patient suffering from malignant disease should submit, as early as possible, to the radical surgical removal of all the visibly diseased tissue that it is possible for the surgeon to remove, and should then be given the benefit of a vigorous course of post-operative Roentgenization. This course of treatment must be vigorous as otherwise it may do more harm than good, and must be guided by the same principle as is a surgical operation, i. e., as severe as the vitality of the patient will permit. The value of this agent as a palliative in hopelessly inoperable cases of malignant disease, has been shown by the complete recovery of patients on whom operation was impossible, and by the relief of pain and the prolongation of life in comfort under normal physical conditions to a degree not attained by any other method of treatment.

63. **Conservation of the Middle Turbinate.**—According to Hitschler, the point to be observed is that a normal middle turbinate cannot be sacrificed without interfering with the functionating power of the nose, and the function of the nose is to cleanse, warm and moisten the air in its passage to the lung. The nasal mucous membrane is not of the same anatomic structure throughout. In passing over a heated surface the air is warmed directly in proportion to the amount of heated surface over which it must pass. Nature has therefore placed in certain portions of the nasal mucous membrane a tissue which can alter the area of its surface to accommodate itself to the varying conditions of the inspired air. The tissue which can thus contract and expand is the cavernous tissue, and this cavernous tissue reaches its highest development in the median surface of the inferior turbinate and in the inferior surface of the middle turbinate—portions of the nasal fossa in the direct line of the current of inspired air. This cavernous tissue also reaches a high grade of development in the inferior portion of the inferior turbinate, and to a less extent on the anterosuperior portion of the septum—the tubercle. It is thus evident that the inferior portion of the middle turbinate is a highly functionating organ and its removal must be accompanied by loss of its function.

67. **Cancer of the Stomach.**—In 2,268 autopsies made at the Philadelphia General Hospital there were 121 cases of primary cancer. The stomach was the site in 37.2 per cent. of the cases (45); and the uterus in 10.7 per cent. (13). Of the cases of cancer of the stomach 32 were in males, and 13 in females. The average age of the patients was 58 years. The youngest was 38, the oldest 76 years. Fifteen, or 35 per cent., occurred between the ages of 45 and 55. Metastases occurred in the following order: Liver, 16 cases; abdominal lymph nodes, 9; pancreas, 8; omentum, 4; mesentery, 4; lungs, 3; kidney, 3; transverse colon, 3; spleen, 3; peritoneum, 3; pleura, 1; both adrenals, 1. The site of the cancer is not reported in all the cases. Of those recorded, the pylorus was the site in 18 cases, the lesser curvature in 4, and the cardiac end in 2. Stenosis was present in 7 cases and atresia in 2.

Chicagô Medical Recorder

December

68 Practitioner and Specialist. H. T. Byford, Chicago.
69 *Preservation of Meats by Cold Storage. H. S. Grindley, Champlain, Ill.
70 Value of the Nurse in the Public School. T. A. Woodruff, Chicago.
71 Contract Medical Practice. C. P. Caldwell, Chicago.
72 Cessation of Discharge During Anterior Acute Gonorrhea Due to Hyperemia not the Results of a Gonorrheal Inflammation of Parts in the Immediate Vicintiy. W. F. Bernart, Chicago.
73 Marcus Patten Hatfield. G. T. Palmer, Springfield.

69. **Preservation of Meats by Cold Storage.**—The investigations which have been made at the University of Illinois on the effect of cold storage on meats were begun in 1904 with the prime object of determining the character of the chemical changes which meats undergo when kept in cold storage. Both boiling and roasting experiments were made and in this connection the detailed chemical examination of eight samples of cooked meat and eight of broth and drippings resulting from the boiling and the roasting were made. The results of these observations confirm the accurate and exhaustive chemical investigations made in this country by Wiley and Pennington and their associates, and Richardson and Schreubel, which demonstrated without doubt that cold storage meats are as nutritive as fresh meats, considered from the standpoint of their chemical composition, and that meats kept in cold storage under proper conditions undergo at most only very slight chemical changes.

Journal of Ophthalmology and Oto-Laryngology, Chicago

December

74 Ocular Symptoms of Diseases of the Accessory Sinuses. W. C. Posey, Philadelphia.
75 Nodular Opacity of the Cornea Cured by Excision. G. B. Jobson, Franklin, Pa.
76 Painless and Bloodless Tonsillectomy with Descriptive Technic. O. Tydings, Chicago.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December

77 *Involution of the Puerperal Uterus; Especially Involution of its Circulatory System. J. R. Goodall, Montreal.
78 Teratoma Strumosum Thyroideale Ovarii. C. C. Norris, Philadelphia.

79 *Appendicitis Complicating Pregnancy, Labor and the Puerperium. P. Findley, Omaha.
80 Incarceration of the Pregnant Uterus. R. W. Lobenstine, New York.
81 Sequelæ of Present-Day Labor. J. O. Polak, Brooklyn.
82 *The Chloroform Package for the Obstetric Bag. F. H. McMechan, Cincinnati.
83 Important, but Often Neglected Factors in Infant Feeding. T. S. Southworth, New York City.
84 Treatment of Typhoid in Childhood. LeG. Kerr, Brooklyn.

77. **Involution of the Puerperal Uterus.**—The essential conclusions drawn by Goodall from a study of 80 uteri are as follows: The uterus renews all its arteries after each pregnancy; the renewal always consists in the building of a new vessel within the lumen of the old one. The walls of the old vessels which have become superfluous are completely absorbed. Under the influence of advanced age, or chronic wasting or acute disease the destruction and absorption may be very incomplete. The differences between the parous and nulliparous uterus arise out of the incompleteness of destruction and absorption of waste products. The changes in the walls of the vessels of the uterus are closely allied to those about the atrophic corpus luteum. Disease, either local in the pelvis or general, renders the process of involution much slower, and acute disease may cause a complete block in involution. Alternating periods of exacerbation and improvement may cause conditions in the uterus resembling a series of involutions.

In later years of sexual life and under the influence of disease the more highly specialized tissues have a strong tendency to be replaced by the less specialized, i. e., muscle by elastic tissue. The veins of the uterine body and cervix are everywhere reduced by a growth of hyaline tissue in their walls and not by organization of clot. Under the influence of age and disease this hyaline growth is replaced partly or wholly by elastic tissue. Syncytial cells play no part whatsoever in the production of these venous changes. The large colorless masses found in the mucosa of the uterus of women who have borne children are the remains of atrophic elastic tissue and not the remains of organized blood clot. This unabsorbed dead tissue may remain at least ten months, but probably very much longer, and is the most positive sign of a foregoing pregnancy. When elastic tissue of the parent vessel remains in the uterus unabsorbed, it becomes either atrophic or hypertrophic. The latter, unless disturbed by a subsequent pregnancy, will remain throughout the woman's life and constitute the so-called sclerosis of pregnancy. This unabsorbed hypertrophic elastic tissue may arise from the elastica interna, or from the elastic tissue of the media and adventitia, or from elastic tissue invading the interarterial space, or from all sources combined. The muscular cells of the uterus and cervix undergo fatty degeneration with subsequent slow absorption of the fat. The fibrous tissues undergo hyaline degeneration with slow absorption of this hyaline substance. Many of the muscle fibers of the uterus disappear completely, especially is this true of the media of the large arteries. The uterine arteries and veins probably undergo a slight reduction in their lumen in a manner similar to that of the arteries of the uterine wall.

79. **Appendicitis Complicating Pregnancy.**—Findley reports 7 cases. In all 7 there had been previous attacks of appendicitis. In 5 the attack of appendicitis preceded the uterine contractions, and in each instance the miscarriage or labor was followed by a rapid development of the symptoms referable to the appendix. In 2 there was a gangrenous appendix, with abscess formation which rapidly spread to the general peritoneal cavity and resulted fatally. In 2 the fetus was dead in utero. In one of these cases a blood mole was expelled 3 days after drainage of an abscess. Of the 7 women, 2 died from septic peritonitis and one from bronchopneumonia. One recovered after abscess formation, 2 recovered after sharp attacks with pus confined to the appendix, and one after a recurrent attack of the catarrhal variety. Death occurred in 3 of the 7 cases—a mortality of 43 per cent. In the three cases resulting fatally, one patient was not operated on, making the mortality in the operative cases 33.3 per cent.

Findley concludes that pregnancy does not incite a primary attack of appendicitis, but recurrent attacks may be precipitated by pregnancy, labor and the puerperium. Severe attacks may be confounded with puerperal infection of the uterus and its appendages. Mild attacks of appendicitis do not alter the course of pregnancy. Severe attacks commonly interrupt pregnancy and may lead to death of the fetus either *in utero* or shortly after birth. Death of the fetus is ascribed to nonviability, toxemia, and septicemia. A woman in the child-bearing period who has experienced one or more attacks of appendicitis should be operated on because of the liability of a recurrent attack in the event of pregnancy. Mild cases do not demand operative intervention unless oft repeated in the course of pregnancy. Severe cases should be operated on without delay. When occurring near the end of the period of gestation or in labor, the pregnancy should be speedily terminated, immediately after which the appendix should be removed. Where an appendiceal abscess has formed, early drainage is imperative, in the fear that the contracting uterus which forms a part of the abscess wall may liberate the pus into the general peritoneal cavity. When operating in the course of pregnancy, every effort should be put forth to prevent miscarriage. Rest should be enjoined, opiates administered, and during the operation the uterus should be handled and exposed as little as possible.

82. **Chloroform Package for Obstetrical Bag.**—This is an advocacy of the use of the dropper ampoule.

Therapeutic Gazette, Detroit

December

85 Epididymo-Vasostomy for Relief of Sterility. E. Martin.
86 Use of Mercury by the Ophthalmic Surgeon. B. Chance, Philadelphia.
87 Rose Cold and Hay Fever, or *Coryza Vasomotoria Periodica*: Its Prophylaxis and Treatment. O. L. Latchford, Philadelphia.
88 Vaccine Treatment of Disease with Opsonic Control. E. C. Seufert, Chicago.
89 Changes in the Vascular System and their Bearing on Treatment. H. A. Hare, Philadelphia.

Southern Medical Journal, Nashville

December

90 Mistakes in Medical Practice. S. G. Bonney, Denver.
91 *Surgery of the Gall Bladder. W. D. Haines, Cincinnati.
92 Importance of Recognizing Mild Cases of Pellagra. G. Dock, New Orleans.
93 Cases of Pellagra. A. W. Ryne, Beulah, Miss.
94 *Unique Case of Renal Calculi. P. Bromberg, Nashville.
95 Acute Osteomyelitis. R. Caldwell, Nashville.
96 The Habitus Enteropticus. F. M. Durham, Columbia, S. C.
97 Treatment of Pelvic Inflammation. E. M. Sanders, Nashville.
98 Late Vomiting of Pregnancy. S. S. Crockett, Nashville.
99 *Hemophilia in One Family. W. M. McCabe, Nashville.

91. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1591.

94. **Renal Calculi.**—While bathing, the patient was suddenly seized with an intense pain in the back (both sides), the pain radiating downward toward the bladder, accompanied by frequent and urgent desire to urinate, which terminated with the passage of a large number of stones. The peculiarity of the stones is the uniformity in shape, the almost identical size, weighing approximately one-fifth of a grain each, the perfectly smooth surface which seems rather highly polished, and the color when first passed. They were covered with a tough mucus and had the appearance of being enclosed in a sac, but when water was added it was apparent that it was only a mucus covering. The stones themselves, when fresh, were remarkably smooth, highly polished, and of a dark, olive green color. These attacks were frequent during the following 2 years, the patient passing several hundred of the stones.

99. **Hemophilia in One Family.**—The history of this family of hemophiliacs is extremely interesting, because it has been traced back four generations, and shows that the transmission has in every case been through the female.

Alabama Medical Journal, Birmingham

December

100 Case of Ovarian Pregnancy. E. M. Prince, Birmingham.
101 Value of Vaccine Therapy in Surgical Affections. J. P. Long, Birmingham.
102 Importance of Careful History Taking and Case Records. C. Lull, Birmingham.
103 Hepatic Abscess. W. H. Wilder, Birmingham.
104 Delirium Tremens—New Plan of Treatment. G. E. Petter, Memphis.
105 Prophylaxis against Infectious Disease from the Standpoint of the General Practitioner. D. C. LaVerne, Birmingham.

Journal of the Missouri State Medical Association, St. Louis

December

106 Regurgitant Vomiting Due to Unusual Adhesions Following Gastroenterostomy with Pyloric Exclusion. M. W. Myer, St. Louis.
107 Corneal Ulcers and their Treatment. S. G. Kelly, Sedalia.
108 Relation of the Physician and Surgeon in Appendicitis Cases. A. B. Miller, Macon.
109 Ou [illegible] Instrument Case: Plea for Simplicity in [illegible] F. C. Ewing, St. Louis.
110 *Spina Bifida. J. M. F[illegible] Kansas City.
111 *Amputation at the S[illegible] e Elbow; Recovery of Patient, [illegible] Sequelæ. B. C. Hyde, Kansas City.
112 Plea for Civil Service in the Charitable Institutions of Missouri. M. A. Bliss, St. Louis.
113 Case of Osteosarcoma. C. W. Watts, Fayette.

110. **Spina Bifida.**—The case reported by Frankenburger is remarkable on account of the immense size of the sac.

111. **Sarcoma of Elbow.**—Hyde reports a case of amputation *at the shoulder-joint for sarcoma of elbow, with recovery of* the patient, and with peculiar postoperative sequelæ, the appearance of a bleb on the abdomen, synchronous with delirium; the desquamation of the blister, *pari-passu* with the disappearance of delirium, at the same time that there was no wound infection or other apparent condition that would cause an altered mental state; pain and muscular weakness in the left lower extremity.

Detroit Medical Journal

December

114 Operative Interference in Appendicitis. A. M. Campbell, Grand Rapids.
115 Adenoids and their Treatment. C. H. Burton, Hastings, Mich.
116 *Plea for the Early, Frequent and Thorough Examination of the Pregnant Woman.* H. W. Yates, Detroit.

Journal Cutaneous Diseases, New York

December

117 *Results of the Wassermann Test in Scleroderma. H. H. Whitehouse, New York.
118 The Psychologic Aspect of Dermatitis Factitia. G. Pernet, London, Eng.
119 *Ad[illegible] G. Pernet, London, Eng.
120 A[illegible] rodermatitis Chronica Atrophicans [illegible] with Associated Morphea Atrophica. J. P. [illegible], and *R. L. Sutton, Kansas City.*
121 Tuberculin Injection in the Treatment of Certain Diseases of the Skin. A. S. Clark, New York.

117. **Wassermann Test in Scleroderma.**—*Of 5 cases of diffuse* scleroderma, 3 *gave a strongly positive* Wassermann reaction, 1 a faintly positive and 1 a negative reaction. The 2 latter patients, however, had been under antisyphilitic treatment, the first for over a year, and the second for 6 months, a sufficient length of time in each instance to negative the test, had both been cases of undoubted syphilis. Two cases of band-like *morphea type appear to stand apart from the others,* the *reaction being negative* in both instances.

These 7 Wassermann tests were made by 3 different investigators, and in each case the original Wassermann test and the Noguchi modification were done, in some instances more than once, and in all with numerous control experiments. Whitehouse deems it not improbable, in view of the histologic similarity of the changes in scleroderma to those in syphilis, that should the Wassermann observations here recorded later be confirmed, syphilis may be found to be an etiologic factor in this disease.

119. **Adipositas Cerebralis.**—The patient, a single woman, aged 29, developed *a variety of symptoms*, some of which were taken at first for myxedema, *for the patient got stout, flabby* and apathetic, but thyroid extract did no good. When seen by Sir Victor Horsley the diagnosis of tumor hypophysi was made, *owing to the diplopia*, lethbargy, paresis of the third and seventh nerves on the right side, amenorrhea, and optic neuritis. The patient was treated by Horsley and lived for some years.

At the necropsy an adenoma of the pituitary body was found. It had been noted that the skin was coarse and the lips thickened. The sections showed in addition to the adipositas a hypertrophic condition of the derma itself, the collagen and elastic tissues being very coarse and thick. The connective tissue framework of the fatty layer was also coarse and hypertrophied. The condition was therefore more than an adipositas, one that affects the integument as a whole. Pernet suggests that perhaps the denomination dermo-adipositas cerebralis, or hypophysi, would fit the change better than the name given to it by neurologists.

Ophthalmic Record, Chicago

December

122 *Poles of the Eye and the Significance of their True Location; and the Binocular Spacial Pole with its Fulness of Meaning.* G. C. Savage, Nashville, Tenn.
123 George Cuvier Harlan. C. A. Oliver, Philadelphia.
124 Tendon-Tucking Operation. D. M. Greene, Grand Rapids, Mich.
125 Bony [illegible] the Choroid Involving the Retina, Cilia[illegible] Lens and Iris, Right Eye. J. W. May, Kansas City.

American Journal Orthopedic Surgery, Philadelphia

November

126 *Intraperiton[illegible] J. Nutt, New York.
127 Principles o[illegible] as Applied to Orthopedic Practice. W. [illegible]
128 Symmetry and Asymmetry: Their Effect in Lateral Curvature of the Spine. A. H. Tubby, London, Eng.
129 Treatment of Severe Scoliosis by Plaster Jackets with Windows and by Braces of a Similar Pattern. Z. B. Adams, Boston.
130 *Adolescent Rachitis. Etiology and Pathology. A. E. Horwitz, St. Louis.
131 *[illegible] rovement of Plaster-of-Paris Technic. [illegible] nnati.
134 [illegible] of Congenital Luxation of Hip After [illegible] G. Davis, Philadelphia.
135 [illegible] tension. G. G. Davis, Philadelphia.
136 [illegible] *for Talipes Equino Varus.* R. T. Taylor, Baltimore.
137 An Appliance for the Correction of Resistant Clubfoot. E. H. Bradford, Boston.
138 *Treatment of Flat-foot. *Use and Abuse of Foot-Plates.* R. T. Taylor, Baltimore.

126. Abstracted in The Journal, Aug. 14, 1909, p. 588.

130. **Adolescent Rachitis.**—*Horwitz* concludes that the disease is a recrudescence of a disturbance which existed in childhood; that this relighting is due to a disturbance in nutrition at the time of great bone activity; that the pathologic histologic changes approach those seen in the infantile type, *and that the development of the genitalia is an important factor in the nutritional disturbances at this period.*

131. **Improvement of Plaster of Paris Technic.**—To any one accustomed to the frequent use of paster of Paris bandages it must always have been apparent that a waste of labor and material constantly occurs in the loss of much of the plaster *of Paris during the manipulation of the bandage prior* to its application to the body of the patient. It is of consequence since, depending as we do, on the plaster to *furnish* the main strength of the dressing, there will be required *more* bandages to make a dressing of sufficient strength if the plaster lost be considerable than if this is not the case. In order to diminish this factor of waste, Freiberg has been using plaster bandages in such a way as to avoid this waste almost completely. *By immersing the plaster* of Paris *bandages while wrapped in a porous paper it seemed possible* to avoid the loss of plaster which ordinarily occurs. After a number of experiments, it was found that the most *efficient* material was a gray filter paper employed in pharmacy. This has, however, the disadvantage of being *rather* expensive when used in quantity. An excellent substitute for this is the *ordinary* white *crêpe paper napkin.* Freiburg has found it *best to use three or four thicknesses of* such napkins to envelop each plaster bandage. The paper covering is secured by a slender rubber band.

The bandages, wrapped as above described, are gently immersed in the water and left there without being disturbed in the least until all bubbling has ceased. It is best to use very warm water and to allow considerably more time than usual, *say from three to four minutes,* for soaking. With the exception of the wrapping, the bandages do not differ from the hand-made ones. When the bubbling *has* ceased the bandage is carefully lifted so as to avoid breaking *the paper.* It is now held quietly in the hand for a few seconds *until* the water is drained from it as much as possible, *without* the use of pressure. If it be not allowed to drain the water *contained within the paper* will balloon when pressure is *made* and the paper will be torn. This is undesirable since it means loss of plaster. This *having been* avoided by the drainage, the bandage is now *slowly but firmly* squeezed with both hands so as to express the water *contained* therein. While it is perhaps not necessary that it be done *thus* carefully, it is possible in this manner to express the water *from* the bandage almost clear, and there is no difficulty *whatever* in applying two plaster jackets from the same vessel *of water* without an appreciable loss of plaster equal to a tablespoonful.

138. Abstracted in THE JOURNAL, Aug. 7, 1909, p. 479.

Yale Medical Journal, New Haven, Conn.

December

139 Chylothorax. F. C. Hyde, Greenwich, Conn.
140 Differential Diagnosis of Atypical Appendicitis. J. E. Loveland, Middletown, Conn.
141 Mouth Breathing. H. E. Smyth, Bridgeport, Conn.
142 *Influence of Thoughts and Emotions in the Causation of Disease. S. D. Gilbert, New Haven, Conn.
143 *The Physician as an Educator in Sanitation. F. E. Guild, Windham, Conn.
144 *Appendicitis During Pregnancy. O. G. Ramsay, New Haven, Conn.

142, 143, 144. Abstracted in THE JOURNAL, June 26, 1909, pp. 2124, 2126.

Journal Experimental Medicine, New York

January

145 *Relation of Catalytic Activity of the Blood to the Number of Red Blood Cells in Health, and to the Number of White Blood Cells and the Body Temperature in Peritonitis. M. C. Winternitz and J. P. Pratt, Baltimore.
146 Catalytic Acti[illegible] n's Eggs. M. C. Winternitz and W.
147 *Experimental [illegible] Guinea-Pig and its Relation to a C[illegible] in Man. S. T. Darling, Ancon, Canal Zone.
148 *Resistance Produced in Mice Against Transplanted Cancer by Autoinoculation of the Spleen. W. W. Woglom, London, Eng.
149 *Respiratory Changes of Pressure at the Various Levels of the Posterior Mediastinum. S. J. Meltzer and J. Auer, New York.
150 *The Excretion of Calcium and Magnesium after Parathyroidectomy. J. V. Cooke, New York.
151 Dextrose Consumption by the Isolated Perfused Human Heart. H. A. Stewart, New York.
152 *An Experimental Study of Opsonic Immunity to *Staphylococcus Aureus*. J. C. Meakins, New York.
153 *Tuberculous Cervical Adenitis: Study of the Tubercle Bacilli Cultivated from Fifteen Consecutive Cases. P. A. Lewis, Boston.
154 *Influence of Adrenalin in Phloridzin Diabetes. A. I. Ringer, New York.

145. **Catalytic Activity of the Blood.**—The catalytic activity of the blood of normal rabbits varies directly with the volume and number of red corpuscles. The catalytic activity of the blood is independent of the temperature of the body and of the leucocytes, because either of these may rise, fall or remain stationary while the catalytic action increases.

147. **Sarcosporidiosis.**—Guinea-pigs were infected by feeding them infected rat muscle. Sarcosporidia appeared identical with those found in the biceps of a negro, both probably representing aberrant forms.

148. **Protective Action of Autoinoculation of Spleen.**—It has been found that the inoculation into mice of different mouse tissues evokes resistance to the growth of transplanted cancer. Woglom shows that autoinoculation of the spleen has the same effect, thus illustrating the extreme delicacy of the reaction.

149. **Respiratory Pressure at Various Levels of Posterior Mediastinum.**—The results of this investigation support the view that the respiratory changes in the apices of the lung are not as good as those in the rest of the lung, and it disproves the claim that any decrease or increase of pressure at any part of the lungs must be equally distributed to all parts of the lungs.

150. **Calcium and Magnesium Excretion After Parathyroidectomy.**—The results suggest a condition of altered salt equilibrium of the nerve cells brought about by the disturbance in the catalytic processes of the body by increasing the acid factors.

152. **Staphylococcus Opsonins.**—The injection of staphylococci killed by heat into rabbits causes a considerable increase in opsonin, and affords protection against living virulent staphylococci in proportion to the amount of opsonin in the blood. There may be great increase of staphylococcus opsonin in human staphylococcus infections and the injection of killed staphylococci may produce a high opsonin content in the blood of human beings.

153. **Type of Tubercle Bacilli in Tuberculous Glands.**—In 15 cases of primary tuberculosis of the lymph nodes of the neck Lewis isolated 9 strains of tubercle bacilli of the bovine type and 6 strains of the human type. The classification was based on adaptability to artificial growth, on character of growth on glycerine broth and of virulence.

154. **Adrenalin in Phloridzin Diabetes.**—The results confirm previous results indicating that adrenalin, by constricting the blood vessels, produces anemia of the tissues and imperfect oxidation, this anemia being followed by glycosuria.

Kansas City Medical Index-Lancet

December

155 Hereditary Spastic Paraplegia: Seven Cases in Two Families. J. Punton, Kansas City.
156 Eugenics. W. I. Thomas.
157 Advantage of Psychometric Methods in Diagnosis, Prognosis and Treatment of Cerebral Disorders. T. A. Williams, Washington, D. C.
158 Great Internal Hemorrhage. H. C. Crowell, Kansas City.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 1

1 Problems Relating to the Evolution of the Brain. G. E. Smith.
2 *Points in the Clinical History of Pneumonia. P. Kidd.
3 Mechanism of Infection in Tick Fever and the Hereditary Transmission of *Spirochæta Duttoni* in the Tick. Sir W. B. Leishman.
4 *Treatment of Wounds and Recent Results Obtained at St. George's Hospital, London. Sir W. W. Cheyne.
5 Postural Albuminuria in a Boy the Subject of Chorea. J. S. Bury and J. F. Ward.
6 Diagnosis and Treatment of Duodenal Ulcer. B. G. A. Moynihan.
7 Combined Mercurial and Arylarsonate Treatment of Syphilis. F. J. Lambkin.
8 The Circulatory System. H. Campbell.

2. **Pneumonia.**—Kidd reports 20 cases which point out some of the unusual features occasionally seen in pneumonia. Thus, a young man, aged 27, who gave a clear history of having had four successive rigors, developed signs of pneumonia of the right lower lobe, and the disease terminated by crisis on the second day. Abdominal pain is a well-known mode of invasion in young children, associated sometimes with tenderness and rigidity in the right iliac fossa sufficient to excite a suspicion of appendicitis. Kidd has seen several cases of this kind. Pneumonia may be introduced by symptoms of meningitis ("meningism"), headache, retraction of the head, photophobia and stupor, which may be very misleading. One of the most uncommon initial symptoms is hemoptysis, meaning by this a free hemorrhage, not merely bloodstained expectoration. The most common form of fever is the continuous with slight morning remissions of from 1° to 1.5°. But there may be much greater remissions, and the pyrexia may even be intermittent and very irregular. The course of the disease, as a rule, is a definite one, ending generally, in the absence of complications, by the ninth or tenth day, more often on the seventh day. Abortive attacks in which recovery takes place within two or three days, are not uncommon in children, but may also occur in adults, as shown by the case reported by Kidd. Among the rare complications noted by him were laryngitis; nephritis; anasarca of renal type without albuminuria; severe maniacal delirium; parotitis; acute delirious mania; and death from pulmonary embolism during convalescence. Kidd also saw a case of typhoid beginning with lobar pneumonia; and one of rheumatic fever and pneumonia combined, a simultaneous infection.

4. **Treatment of Wounds.**—Cheyne states that he does not believe that a surgeon will get the best results unless he takes the view that suppuration in clean wounds is avoidable, and that the way to avoid it is to look on the treatment of a wound as a bacteriologic problem, and to act accordingly.

British Medical Journal, London

January 1

9 [illegible] White.
10 *[illegible] um. J. W. Ballantyne.
11 *[illegible] Thoracostomy) in Heart Disease. W. Thorburn.
12 [illegible] diac Pain. O. May.
13 [illegible] Treated with Antidiphtherial Serum.
14 *Henoch's Purpura or Angioneurotic Edema? H. C. Barlow.
15 Fatal Aplastic Anemia. W. Thomas and H. D. Rolleston.
16 Presence of Bilharzia Hematobia in Egyptian Mummies of the Twentieth Dynasty. M. A. Ruffer.
17 Foreign Body in Tongue. W. Murray.

18 Efflorescence of Urea in Uremia. J. A. W. Pereira.
19 Modification of Whitehead's Operation for Hemorrhoids. W. S. Richardson.
20 Position of Patient after Operations on the Abdomen. S. K. Vines.

10. **The Rational Puerperium.**—In order to obtain for puerperal patients the advantages associated with early rising without the risks which might be expected to belong to the resumption of the erect posture in the first days of the puerperium, Ballantyne recommended to such patients as he considered suitable the performance of systematized movements carried out in the horizontal posture. The movements were quite voluntary. Each patient was covered with a blanket and lay flat in bed with her arms by her sides. The nurse, standing in the center of the ward, directed the exercises. The patients were directed to turn from the back onto the side; three times they rolled on to the one side; three times they drew up the knees; and three times they rolled on to the other side. Next they did exercises with the arms, first stretching them above the head, then flexing them on the chest, then stretching them at right angles to the trunk, and finally placing them by the side; the arm exercises were carried out six times. Next they did breathing exercises six times, filling the chest with air, the arms being stretched by the sides the while. Finally they rolled from side to side three times. In the majority of cases these movements were begun in the first day of the puerperium—that is, in the second twenty-four hours after labor. In no case were they begun later than the fourth day. On the first day they lasted for about ten minutes, on the second day for twenty minutes, and on the third for thirty minutes; they were never carried beyond that time. In most of the cases the tone of the abdominal muscles when the patients left the hospital was above the average, and it was noticed that the result was poorest in phlegmatic women and in those who had shown no enthusiasm for the exercises. It could not be traced that the movements had any marked effect on the action of the bowels. The 69 patients who exercised from the first day onward were mostly normal cases. In 18 cases in which the exercises were begun on the second day there had been some interference or anomaly; case of forceps for persistent left occipito-posterior position; hydramnios with an anencephalic fetus; slight albuminuria; twins; cervical cysts; several breech presentations; prolapsed cord and dead fetus; syphilis with a dead fetus; epilepsy; and postpartum hemorrhage. Among 16 in which the movements were begun only on the third day there had been more serious irregularities, such as craniotomy 2, eclampsia 4, albuminuria 3, postpartum hemorrhage and induction of labor. The four patients who began so late as the fourth day were a case of collapse after delivery of twins, two cases of accidental hemorrhage, and one case of persistently rapid pulse in which thyroid extract had been given during pregnancy for marked obesity. With regard to the date of assumption of the erect posture, each of the cases in which exercises had been performed was judged on its own merits, with the result that 43 patients rose on the seventh day, 38 on the eighth, 19 on the ninth, and 4 on the tenth, and 1 each on the sixth, the eleventh and the twelfth. Toward the beginning of the quarter the eighth day was regarded as the routine time for leaving the horizontal position, but toward the latter part of the term many of the patients got up on the seventh. A very noticeable feature in these cases was the absence of the usual phenomena which follow on rest for some days in the horizontal position; the patients, for instance, did not experience the same feeling of weakness in the limbs, dizziness, etc., as usual. It seemed, therefore, as if the seven or eight days' rest in bed with the exercises was followed by a more immediate return to the condition of normal health and strength than after the longer period of rest without the exercises.

11. **Cardiolysis in Heart Disease.**—To 15 cases of cardiolysis recorded in the literature, in which operation on the thorax was undertaken with the object of freeing the heart from adhesion to its bony wall, Thorburn adds one successful case, that of a boy, aged 15, who 9 years after the operation was in much better condition than before.

14. **Henoch's Purpura.**—The most interesting feature common to both the cases reported by Barlow was the occurrence of solid edema which appeared and disappeared very rapidly. This is not a condition generally seen in Henoch's purpura, but angioneurotic edema is characterized by severe gastro-intestinal crises. In neither case was the spleen felt. The temperature in the first case was slightly raised at the onset, but in the second it was normal throughout; in both at times the pulse was unduly slow, and for some time in the younger boy (aged 4½ years) it was regularly intermittent. There was no involvement of the joints in the first case, and a very slight and transient swelling of one joint in the second. The changes in the younger boy's general condition were very rapid. One morning he would appear to be *in extremis*, and the next his illness seemed to be slight. Both patients recovered.

Medical Press and Circular, London

December 29

21 Treatment of Congenital Talipes Equinovarus in Infants. W. G. Stevenson.
22 The Digestive Disturbances of Rickets. Prof. A. B. Marfan.
23 Genital Tuberculosis. Prof. Legueu.
24 The Contagion of Leprosy. A. S. Ashmead.
25 The Child Criminal. W. C. Sullivan.
26 Proposed Sterilization of Certain Degenerates. R. R. Rentoul.

Journal Tropical Medicine and Hygiene, London

December 15

27 Filariasis in Fiji. A. D. Brunwin.
28 Bilharziosis of the Anus. F. C. Madden.

British Journal of Children's Diseases, London

December

29 Mirror Writing. G. A. Auden.
30 The Position of the Apex Beat in Children. J. E. H. Sawyer.

Bristol Medico-Chirurgical Journal

December

31 History and Practice of Surgery in Ancient and Medieval Times. J. Swain.
32 *Mercurial Treatment of Tabes Dorsalis. M. Faure.
33 *Vis Medicatrix Naturæ. G. M. Smith.
34 *Cases of Pneumonia. A. Fells.

32. **Mercurial Treatment of Tabes Dorsalis.**—According to Faure, mercurial treatment, better followed longer and more generalized, is one of the causes, and probably the initial cause, of the transformation of the prognosis of tabes. It is generally among patients who have followed, or will follow, a methodical and prolonged mercurial treatment that the evolution of the disease remains benign, provided that they do not ignore other therapeutic rules, and that diagnosis is, and has been, made early, and treatment commenced in good time. It is among patients badly treated, or not cared for at all (who were formerly the rule), that the evolution of the disease remains progressive; but evidently this rule admits of exceptions and corrections in one or the other of both its parts, as dogmatic affirmations in medicine always do. The mercurial treatment to be performed by injections of soluble salts, which permit a stricter surveillance of individual toleration. Calomel and grey oil ought to be reserved for strong and robust patients, and constitute for these cases the best procedure. For other patients, the use of these two substances may be attended with fatigue, and sometimes with an increase of certain tabetic symptoms; hence a difficulty arises in making the medication acceptable, and hence the complaints which are heard against it. Two or three centigrams of mercury benzoate or biniodid daily are sufficient in the majority of cases. The injections should be discontinued in every case in which the patient feels indisposed; but if the salt is soluble, uneasiness will disappear with the elimination of the drug in one or two days. Among invalids whose general state requires exceptional care the hydrargyrum cure may be made with smaller doses and associated with or followed by an arsenical cure.

A series of from 15 to 39 cg. of mercury (*metal*), renewed about four times yearly, may be given in order to complete an average of 1 gram in the year. Theoretically, 1 cg. of mercury (metal) daily may serve as a standard for the whole of a series, for ordinary patients. The *intensity* of the treatment does not result either from the quantity of a daily dose, or from the nature of the salt employed, but from the whole dose of the series. Consequently, the series will become shorter as the daily dose becomes bigger.

33. **Vis Medicatrix Naturæ.**—Smith expresses his disbelief in empirical drugging when it has no reason to be trusted from experience, or is not founded on some physiologic principle. Until a thing has been tried on man or animals, one cannot say much. But the whole history of medicine shows how great faith one generation has had in a mode of treatment that the next generation utterly disbelieves in. In studying the various processes that go on for our protection and recovery from disease and accident, there is something which appeals very powerfully to the imagination. To a man who takes a hopeful view of things, the *vis medicatrix naturæ* is a great beneficent force or series of forces. To the pessimist the whole thing merely emphasizes the struggle between the good and evil.

34. **Pneumonia.**—In the first case reported by Fells, the pneumococcus was thus responsible for three distinct and consecutive pneumonic attacks—an empyema, a nephritis and an arthritis. In two other cases, the pneumonia was followed by thrombosis in the veins of the left leg, which appeared with startling suddenness when the patient first stood up after three weeks in bed, and when convalescence from the pneumonia was well established. The swelling was peculiarly hard, and there was no pitting on pressure.

Annals of Tropical Medicine and Parasitology, Liverpool

November

35 Medical and Economic Entomology. R. Newstead.
36 Malaria. W. T. Prout.

Annales de Gynécologie et d'Obstétrique, Paris

December, XXXVI, No. 12, pp. 721-780

37 Menstruation merely a sign of Abortion of an Ovum. (La menstruation dans ses rapports avec l'ovulation, la fécondation, la gestation et l'allaitement.) B. Pinard.
38 Adenomyomas of the Inguinal Portion of the Round Ligament. P. Lecène.
39 *Rapid and Effectual Action of Serotherapy in Acute Gonococcus Infection in the Female. C. le Masson.

39. **Serotherapy of Acute Gonorrhea in the Female.**—Le Masson reports only one case but the apparent complete cure in 17 days, the demonstration of the harmlessness of this method of treatment and the rapidity of its action he thinks justify publication of a report. Five days after the first injection the vaginal secretion had ceased and no gonococci could be discovered; in fourteen days the local symptoms had entirely subsided. Serotherapy is more liable, he asserts, to entail a speedy and complete cure of acute lesions than in the older processes, but it may influence favorably the acute exacerbations of chronic processes. His experience also confirms the analogy in many points between the gonococcus and the meningococcus.

Lyon Médical, Lyons

October 31, XLI, No. 44, pp. 729-768

41 *Localized "Goose Flesh" as Sign of Visceral Disturbance or Neuropathy. (Etude du phénomène localisé de la chair de poule.) Maurice.

November 7, No. 45, pp. 769-812

42 *Symptomatic Value of Hemoptysis in Pulmonary Tuberculosis. M. Piéry.

November 14, No 46, pp. 813-856

43 *Localizations of Acute Articular Rheumatism in the Subcutaneous Connective Tissue. (Phlegmon séreux rheumatismal.) Gallavardin.

November 21, No. 47, pp. 857-896

44 *Permanent Spasmodic Paralysis in the Course of Slow Chronic Uremia. A Pic and C. Roubier.

November 28, No. 48, pp. 897-928

45 Prophylaxis of Typhoid. H. Rondet.

December 5, No. 49, pp. 929-996

46 Individual Isolation to Prevent Internal Contagion in Children's Hospitals. P. Chatin.

December 12, No. 50, pp. 997-1064

47 *Present Status of our Knowledge of Cirrhosis of the Liver. M. Piéry.

41. **Localized "Goose Flesh."**—Vergély called attention a few months ago to the fact that a pencil drawn lightly along the skin over the liver region may induce a local patch of "goose-flesh," limited to this locality. He encountered this in 2 patients with inflammatory processes in the biliary passages, and ascribed it to the influence of the local process. Maurice has obtained a positive response in a number of other patients and describes 4 cases in detail. He is more inclined to regard the localized erection of the papillæ of the skin as a sign of a neuropathy with or without a complicating infectious process. The extra-excitability of the sympathetic system in certain neuropathies as shown by this sign suggests the necessity for tranquilizing the sympathetic system and the viscera innervated by it. Otherwise the viscera may be abnormally innervated and forced into abnormal movements. It is possible that when the automatic functioning of the biliary passages is disturbed by an overvigorous nerve wave or too frequently repeated waves, the even flow of the bile is interfered with, germs are aspirated from the intestines and infection results. This visceral overexcitability should be calmed: drugs have only a temporary sedative effect but a change from the home environment may accomplish the purpose.

42. **Symptomatic Importance of Hemoptysis.**—Piéry discusses hemoptysis as it appears in abortive pulmonary tuberculosis, in the fibrous form, in the common fibro-cheesy type and in galloping consumption. With the exception of the hemoptysis of mitral stenosis, it is almost invariably of tuberculous origin or, at least, it is wise to treat the patient for several months on this assumption. In a few rare cases, however, the cause may prove to be cancer, gangrene of the lung, an echinococcus cyst or aneurism of the arch of the aorta. If the blood is red and fresh, there is danger that the hemoptysis will continue, as also when there is fever or when the pulse is 100, 110 or 120, small and depressible.

43. **Localizations of Acute Articular Rheumatism in the Subcutaneous Connective Tissue.**—There are two principal types of subcutaneous lesions developing during the course of acute articular rheumatism, the edematous and the pseudophlegmonous. The latter type may include a serous phlegmon with a clear sterile fluid content. In the two cases reported, the phlegmon was on the leg, developing in young men, rather addicted to alcohol, in the course of a severe and protracted acute articular rheumatism involving the heart and with a tendency to other fleeting pseudophlegmonous localizations in or near the joints.

44. **Paralysis from Uremia.**—The case reported by Pic and Roubier shows that permanent spasmodic paresis may develop from the uremia in the course of chronic interstitial nephritis. The paresis may present the paraplegic form and may vary in intensity. The uremic intoxication probably entails edema in the brain, or the cerebrospinal fluid becomes more toxic. Lumbar puncture may bring some improvement.

47. **Cirrhosis of the Liver.**—Piéry remarks that recent research has demonstrated the unity of the general process in cirrhosis, has defined the initial lesions and has revealed the special points which differentiate cirrhosis from hepatitis. A toxic inflammation of the liver is responsible for many of the tardy chloroform fatalities. He reviews the cirrhosis resulting from tuberculous, syphilitic and other processes, remarking that there is no special pigmentation or cardiac cirrhosis. In the cases suggesting the latter, the trouble, he asserts, is merely cirrhosis of various origins in individuals with heart disease, and the same is true also of cirrhosis with pigmentation. The latter is the result of the setting free of an excessive proportion of hemoglobin. The amount need not be very large to produce this effect when the liver is diseased.

Obstétrique, Paris

November, II, N. S., No. 11, pp. 797-884

48 *Treatment of Puerperal Infection. J. Barsony.
49 Radium Treatment of Gynecologic Disease. H. Chéron.
50 Importance and Advantages of Müller's Method of Delivery with Breech Presentation. (De l'extraction d'après Mueller.) J. Lovrich.

48. **Intravenous Bichlorid Treatment of Puerperal Infection.**—Barsony advocates intravenous injection of bichlorid of mercury which he has been using for this purpose during the last 6 years, after 9 years of tentative administration. In well-established puerperal infection he injects 0.005 gm. of the bichlorid and if the temperature keeps up, he repeats the injection the same day. The injections are suspended at the slightest sign of intoxication and resumed, with a smaller dose, when these symptoms have subsided. The healthy organism cannot tolerate the doses that infected individuals need and tolerate perfectly. In one desperate case he made 28 injec-

tions, representing 0.138 gm. of the bichlorid, in the course of 16 days and the woman recovered. Kenezy made an intravenous injection of 0.02 gm. by mistake in 2 cases but without harm. Barsony discards all local *treatment* except weak *antiseptic* vaginal douches, never using the bichlorid for this purpose for fear of cumulative action. The number of red corpuscles increases in normal and febrile pregnant women under the influence of the injections. In one case of puerperal sepsis the reds numbered only 1,200.000, with 20 per cent. hemoglobin, but the woman recovered. A 2 or 5 per 1,000 solution of the mercuric chlorid in physiologic salt solution for intravenous injection and 1 or 0.5 gm. potassium permanganate for the vaginal douches are all that is necessary, with two visits a day and *careful supervision of the action of the drug*. In a total of 2,736 obstetrical patients in the last few months only 2 women succumbed to puerperal infection and they had pre-existing pyosalpinx or felon. The results in general have been so satisfactory that he has decided in future to make a prophylactic injection *of 2 mg. in all parturient patients*, and inject 3 mg. as a routine procedure before major gynecologic or obstetric operations.

Presse Médicale, Paris

December 18, XVII, No. 101, pp. 905-920

51 *Acute Articular Rheumatism with Goiter. (Le rhumatisme prolongé des goitreux.) E. Weill and G. Mouriquand.

52 Deep Painful Angioma on Arm or Leg. (Angiomes profonds douloureux des Membres.) H. Benard and L. Lamy.

53 Radium in Cancer. (Quelques réflexions personnelles sur la lutte contre le cancer par le radium.) L. Chevrier.

54 Radioactive Mineral Waters and Serums. (Eaux minérales radioactives et sérums artificiels radioactifs.) C. Fleig.

55 The Esbach-Paquet Quantitative Test for Albumin in the Urine. L. L. Ozoux.

December 22, No. 102, pp. 921-928

56 Chemical Changes in the Fat from the Food in the Intestine. (Chimisme *intestinal des graisses alimentaires.*) A. Richaud.

57 Symptomatology of Fracture of the Femur. (Similitude des symptomes dans les fractures intra- et extra-capsulaires lorsque le trait de fracture a la même direction.) J. *Hennequin and G.* Kuss.

58 *Clinical Estimation of Acidity of Urine. A. Martinet.

51. **Acute Articular Rheumatism with Goiter.**—Weill asserts that acute articular rheumatism in an individual with goiter has a peculiarly protracted course, apparently unmodified by *salicylic medication. He believes that thyroid insufficiency* reduces the resisting power of the organism in respect to rheumatism. His and others' experience also shows that thyroid treatment seems to reinforce the defensive processes and he advises tentative thyroid treatment in all such cases. *He states that he has never witnessed anything that suggests* to him that the goiter is able alone to cause the rheumatism syndrome.

58. **Estimation of the Acidity of the Urine.**—Martinet expatiates on the importance of a rapid, simple and reliable method of estimation of the acidity of the urine as a basis for treatment in various conditions, and describes the technic he prefers for the purpose: To 20 drops of decinormal sodium hydrate solution in a test-tube are added 2 drops of a 1 per cent. alcoholic solution of phenolphthalein and the whole heated to boiling. With the *same dropper, urine is then* added, drop by drop, the tube being shaken occasionally until the distinct pink color vanishes entirely. The total acidity is expressed in terms of sulphuric acid, SO_4H_2, by dividing 98 by the number of drops of urine required for decoloration. He describes the chemical *process involved*.

Revue de Médecine, Paris

November, XXIX, No. 11, pp. 753-840

59 *Actinomycosis Simulating Cervical Pott's Disease. (Actinomycome cervico-rachidien.) A. Chauffard and J. Troisier.

60 *Chronic Inflammation *in the Aorta. (Le syndrome de Hodgson.)* J. Vires and Anglada.

61 Herpes Zoster in Mumps. (Le zona ourlien. Apropos d'un cas de zona au cours d'une méningite ourlienne.) H. Roger and J. Margarot.

59. **Actinomycosis Simulating Cervical Pott's Disease.**—Actinomycosis may induce a syndrome *simulating* Pott's disease in the upper part of the spine as in the case reported here. A hack-driver of 31 complained of sudden and painful stiff neck, which persisted unchanged for months, and a tumor developed in the left sternomastoid region, extremely painful, hard as wood and constantly growing larger until the circumference of the neck was nearly 20 inches. After exclusion of woody phlegmon and tuberculosis, the condition was diagnosed as actinomycosis. This assumption was confirmed by the painful trismus, the persisting good general health and the patient's occupation with horses. The blood and spinal fluid were constantly sterile, but the specific agglutination and fixation reaction were pronounced as also the opsonin findings; the seroreaction for syphilis was negative. *The cerebrospinal fluid* was limpid but showed notable lymphocytosis and tendency to cytolysis. Marked improvement was soon evident under 4 gm. of potassium iodid a day and later 6 gm. The patient could move his head and neck without pain by the end of the week and the other symptoms gradually subsided although traces of the tumor were evident even after 3 months, but none by the end of the year.

60. **Chronic Aortitis.**—*Vires states that* chronic inflammation of the aorta may induce valvular or vascular insufficiency and the latter is mainly responsible for the syndrome, and reports a case with autopsy findings and discusses the origin and differentiation. The symptoms are those of incom*petency of the valve segments with abnormal dilatation* of the aorta. Radioscopy, he declares, is valuable for its recognition; the dilatation of the ascending aorta explains the sounds and signs observed.

Semaine Médicale, Paris

December 22, XXIX, No. 51, pp. 601-612

62 *Hemoglobinuria from Hemolysis with Acute Jaundice. (Hémoglobinurie hémolysinique avec ictère polycholique aigu.) A. Chauffard and C. Vincent.

62. **Hemoglobinuria and Acute Jaundice from Hemolysis.**—The patient *in* the case reported was a man of 47 previously healthy until acute jaundice developed with hemoglobinuria *and a hemolysin abounding in the blood*. The latter was evidently responsible for the disturbances. This hemolysin anemia did not seem to be a secondary process or process of reaction but was evidently responsible for the hemoglobinuria and vanished as the latter subsided. The jaundice was not due to retention. After about a week of weakness and torpor recovery gradually ensued. The case seems to be the connecting link between the different morbid conditions of acquired hemolytic jaundice on one hand and paroxysmal toxic hemoglobinuria on the other, with some features of each. The attack developed in midsummer, without chilling, which is sometimes responsible for hemoglobinuria.

Archiv für Verdauungs-Krankheiten, Berlin

December, XV, No. 6, pp. 671-808

63 *Dietetic Treatment of Gastric Ulcer. (Diätbehandlung des Ulcus ventriculi.) M. Lüdin.

64 *Spasm of Colon and the Alleged Spastic Form of Constipation. (Weitere Beiträge zur Lehre von der sogenannten spastischen Obstipation.) I. Boas.

65 Pyloric Spasm. S. Schütz.

66 Method of Catheterizing Duodenum and Pylorus. M. Einhorn.

67 *Etiology of Anacidity. R. Stiller.

68 The Metabolic Findings during Sudden Change from Years of Strict Vegetable Diet to Animal Food. (Ueber die Ausnützung animalischer Nahrungsmittel von Seiten langjähriger absoluter Vegetarier—japanische Bonzen.) G. Yukawa.

63. ***Dietetic Treatment of Gastric Ulcer.***—Lüdin compares the results of the Leube diet applied in former years with those of the Lenhartz diet which has been followed during the last two years, all at Gerhardt's clinic at Basel. The statistics embrace 55 cases before 1907 and 45 since. The percentage of *complete cures and the duration* of the course of treatment were much alike in both series, but the different classes of patients showed some difference, suggesting *that the* Leube method is preferable for the subacute cases, *that is, those* in which there had been hemorrhage from the stomach before the patients entered the clinic. On the other hand, the Lenhartz diet seems to be preferable for the cases in which the ulcer is still bleeding, although three days of fast must intervene after the hemorrhage before the Lenhartz diet is commenced. In the cases with no history of hemorrhage, the number of complete cures was larger under the Leube treatment, but the duration of the required course was not so long with the Lenhartz diet. The criterion for the cure was when the patients could tolerate the full diet of the regime and be able to spend several hours out of bed without further disturbance from the ulcer.

64. **Spasm of the Colon and the Alleged Spastic Obstipation.**—Boas discusses the condition which others interpret as "spastic constipation" and asserts that further experience has shown that it is possible to cure the constipation in these cases, and he has done so repeatedly, while the spasmodic contraction of the colon is still unmodified. Why, he asks, does not the spasm cease when the functioning of the intestines is restored to normal without any drugs, merely by dietetic measures, as for ordinary constipation, and the patients feel subjectively entirely well and continue to feel well? This seems to disprove completely any connection between the so-called spastic obstipation and the colon spasm. At the same time, he adds, this spasm of the colon deserves more and careful study on account of its frequency. He encountered 20 such cases in the last year and 2 others with the clinical picture of spastic constipation but no signs of intestinal spasm. The spasm in 10 cases was accompanied by severe constipation; in 5 others there was diarrhea, and in 4 normal bowel functioning. The spasmodic contraction occurred at the sigmoid flexure in 6. in the transverse colon alone in 1, in the ascending colon alone in 2. and in the descending colon alone in 4; while in 7 there was spasmodic contraction at several points in the intestines. In no instance were all the segments of the large intestine contracted simultaneously. In 7 cases the spasm at the sigmoid flexure was accompanied by a movable cecum. He urges further research to determine the actual prevalence of intestinal spasm with clinically normal bowel functioning; whether these spasms are an accompaniment of other organic or functional disturbances elsewhere; what their relations are to neurasthenia; whether they can be induced by reflex action and from what organs; the relations between intestinal spasm and enteroptosis or displacement of the intestines; the nature of the relations between spasm of the colon and chronic enteritis, if such exist; whether or not chemical or physical changes in the feces are liable to induce the spasmodic contraction in the large intestine; whether or not any means can be found to arrest the tendency to spasm, and if such can be found what their action will be on bowel functioning. Boas has discovered this spasm in individuals with normal intestinal functioning but who were nervous and excitable, also in individuals with chronic constipation, chronic diarrhea, rectal carcinoma, chronic catarrh of the large intestine and chronic sigmoiditis. The spasmodically contracted segment of the intestine is not sensitive to pressure and the intensity of the spasm varies as it is examined through weeks and months. When it is multiple, one segment may contract more intensely while another will relax, and *vice versa*; the contraction may even vanish entirely, he states, under soft stroking with the fingers but only to return later in more intense form. He has never witnessed its complete permanent subsidence in any case. When the intestines are inflated the spasm relaxes but it returns again the moment the air escapes. In one case, he sought to cure the tendency by regular distention in this way, systematically repeated, but was unable to induce more than a transient influence on the spasm. The same occurs with injection of fluids. As the contraction is easily relaxed by air and water, it can offer no obstacle to the passage of feces. He was unable to detect any influence on the spasm from the action of belladonna and other drugs.

67. **Etiology of Anacidity.**—Stiller quotes Kelling's recent statement that anacidity is encountered in tuberculosis, in cancer, gout and gall-stone diseases and with tenia, but that the overwhelming majority of such patients are neurasthenics. He then continues with the assertion that all neurasthenics can be separated into two classes and that it is only one of these classes which presents this tendency to anacidity and achylia. These two classes of neurasthenics are each distinguished by certain pronounced anatomic, physiologic and pathologic characteristics. The first class includes the individuals with general asthenia, the movable tenth rib, splashing sound in the stomach, tendency to ptoses of various viscera, defective production of blood and defective nourishment, hypoplasia of the heart and vessels, dyspeptic disturbances and a tendency to nutritional disturbances on slight causes. In short, the neurasthenia is merely one component of the general asthenia which is a constitutional anomaly. The second category of neurasthenics includes all other forms of neurasthenia, the cerebral, spinal, cardiac, sexual and algid. These neurasthenics may present all possible algias, nosophobias, dyspnea, palpitations, arrhythmia or sexual anomalies, but they look sound and healthy all the time, and with all their complaints and suffering and tears never lose their appetite. The contrast between their mental and moral bankruptcy and their well-fed aspect is always striking. He calls this form of neurasthenia the "irritative" to distinguish it from the asthenic in which the nervous disturbances and complaints are of a milder, quieter nature, although of course there are transitional forms. One of the most essential features of the asthenic type is the participation of the abdominal sympathetic system in the constitutional asthenia. This is responsible for the manifold functional aberrations in the digestive sphere, not only in the stomach but in all the digestive secretory glands and assimilating organs, with the specially characteristic undernourished and anemic condition and aspect. This sympathetic or vegetative or dyspeptic neurasthenia explains the nutritional disturbances in these cases and the varying functional disturbances swinging from anacidity to hyperacidity, from extremes of defective to excessive functioning, so that hyperacidity may alternate with or supplant anacidity or the reverse at any moment. The constantly shifting picture is merely the result of the instable, hyperexcitable, asthenic sympathetic nervous system. Gall-stones and tenia by reflex action may induce a similar condition of heterochylia, as he calls it. With an organic affection the secretory disturbance is more constant. The majority of tuberculous individuals are of this asthenic habit, but all asthenic persons do not become tuberculous by any means.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XV, No. 1, pp. 1-165. Last indexed Dec. 11, p. 2042

69 *Defects in Development in the Female. (Entwicklungsstörungen beim weiblichen Geschlecht.) E. Kehrer.
70 The Isthmus of the Uterus and Placenta Prævia. (Der Isthmus uteri; die Placenta isthmica: Fall von Placenta praevia isthmica et cervicalis.) O. Pankow.
71 *Sources of Error in Digital Measurement of Diagonal Conjugate. (Fehlerquellen bei der digitalen Messung der Conjugata diagonalis.) H. Sellheim.
72 Complete Ruptures of Uterus at Munich Woman's Clinic during the last Fifty Years. F. Weber.
73 *Manual Separation of the Placenta. (Ueber manuelle Lösung der reifen Placenta.) A. Leo.
74 Etiology and Prophylaxis of Postoperative Thrombophlebitis. L. Hell.

69. **Defects in Development in the Female.**—Kehrer gives a systematic review of the various defects in physical development encountered in the female, hoping that by studying and classifying them light will be thrown on their causes. A genetic classification is as yet impossible but Campbell has started a foundation for it by his announcement that he was able to induce at will disturbances in the development of the uterus in rats by a one-sided diet, especially exclusive restriction to meat.

71. **Sources of Error in Estimation of Size of Diagonal Conjugate.**—Sellheim discusses the errors due to measuring from the wrong points, changing the position of the finger during the procedure, and inaccurate reading of the measurement taken by the finger in the pelvis.

73. **Manual Separation of the Placenta.**—Leo analyzes the experiences in the Halle clinic with 329 cases of manual separation of the placenta. It is evident from them that far more lives are sacrificed from hemorrhage on account of too tardy intervention than from infection acquired during the procedure. With proper technic the prospects for the puerperium are not much affected. His practice is to draw down or press down the uterus until the external os is outside the vulva, the woman being on her back, under the influence of a general anesthetic, the vulva washed with soap and the vagina briefly rinsed out. The placenta is then separated with the hand protected with a rubber glove while the other hand pushes down the fundus. After removal of the placenta, the hand is rinsed in a disinfectant fluid and introduced again to examine conditions anew. The whole is concluded by rinsing out the uterus and vagina with a weak hot disinfectant solution.

Berliner klinische Wochenschrift

December 20, XLVI, No. 51, pp. 2281-2336

75 *Internal and Operative Treatment of Round Gastric Ulcer and its Sequelæ. (Interne und chirurgische Behandlung des runden Magengeschwürs und seiner Folgezustände.) W. Weintraud. (Chirurgische Behandlung des Mageuulcus und seiner Folgezustände.) Heile.
76 *Experimental and Critical Study of Tuberculin Therapy. J. Citron.
77 Roentgen-Ray Equipment for Field Service. (*Heutiger Stand* der Verwendung von Röntgenstrahlen im Kriege.) Niehues.
78 Determination of *Trypsin in Serum, etc. (Verwendung der Fuld-Gross'schen Methode zur Antitrypsinbestimmung.)* J. Trebing and G. Diesselhorst.
79 Element of *Time in Phloridzin Glycosuria* Test of Kidney Functioning. (Ueber [illegible] loridzinglykosurie in der [illegible]) A. Salomon.
80 *Origin of Urobilin.* (Zur Frage der *Urobilinentstehung.*) S. Möller.

75. Treatment of Gastric Ulcer.—Weintraud discusses his experiences with 150 cases of gastric ulcer, comparing the Leube and Lenhartz methods and the indications for operative intervention. He has found the most effective measure against internal hemorrhage to be intravenous injection of a 10 per cent. salt solution. The effect, he asserts, is sometimes remarkable; the patient may keep on vomiting but there are no longer fresh clots in the vomitus. As a rule, severe gastric hemorrhage with repeated and frequent vomiting of blood is best combated by complete rest, for which morphin may be necessary, ice, withdrawal of all food until the hemorrhage ceases, and intravenous saline infusion. If the vomiting of blood persists the salt solution may be injected repeatedly in small amounts into the vein and rectum, supplemented by camphor. These measures generally suffice under constant supervision, otherwise a surgeon must be called in. A course of alkaline waters seems to be the best means of healing obstinate gastric ulcers and preventing serious after-effects. Heile reviews his 26 cases of gastric ulcer in which he has operated in the last three years, calling attention to the possible occurrence of a gastric ulcer with gall-stones. In one such case disturbances persisted after removal of the gallbladder for stones but subsided entirely after a second laparotomy had disclosed a large indurated gastric ulcer.

76. Tuberculin Treatment.—Citron writes from Kraus' service in the Berlin Charité to relate what has been learned from years of extensive tuberculin treatment of pulmonary tuberculosis. The main point, he says, is to bear in mind that tuberculin is not a protecting substance in itself but merely serves to stimulate the organism to produce its own protecting substance. Consequently the organism must be given time and be allowed to rest between the doses, as otherwise its power to produce antibodies becomes exhausted. His chief contention is that tuberculin treatment belongs in the hands of the general practitioner who alone, as a rule, is able to persevere with the course to its full conclusion. During the first month, it is better, he says, to have the patient under constant medical supervision but after this, office treatment is sufficient. If a time comes in which no improvement nor arrest of the tuberculosis is evident during the course of a month of treatment and the tuberculous process continues to progress in spite of the tuberculin treatment he advises discontinuing it. Reports of four typical cases illustrate the types most frequently encountered. Benefit is revealed by increase in weight, improvement in the local findings and loss of fever.

Deutsches Archiv für klinische Medizin, Leipsic

XCVIII, Nos. 1-3, pp. 1-298. Last indexed Jan. 1, p. 86

81 Localization of Sensory Paralyses. (Zur Lehre von der Lokalisation sensibler Lähmungen.) D. Gerhardt.
82 *Research on the Functioning of Diseased Kidneys. (*Funktion* kranker Nieren.) K. Schlayer and R. Kakayasu.
83 Antipneumococcus Immunization of Man, Rabbits and Mice. (Bakteriotropine des Blutserums *bei Pneumokokkeninfektionen.*) G. Boettcher.
84 Spectroscopic Study of Hemoglobin. (*Hämoglobin in normalen* und pathologischen Zuständen. Lichtextinktion und Eisengehalt.) E. Masing.
85 Mechanical Theory of Increased Blood Pressure in Nephritis. (Experimentelle Untersuchungen über die Bedeutung der mechanischen Theorie der nephritischen Blutdrucksteigerung.) W. Alwens.
86 *Arteriosclerosis* and Palpability of Artery Walls. (Arteriosklerose und Fühlbarkeit der Arterienwand.) H. Fischer and K. Schlayer.
87 Pathology of Suprarenals in Man. (Zur Kenntnis der Pathologie der *menschlichen* Nebenniere.) A. Goldschmidt.
88 *The Atonic-Astatic Type of Infantile Cerebral Paralysis. O. Foerster.
89 Blood Count Technic Simplified. (Eine neue Technik der Leukocytenzählung.) V. Ellermann and A. Erlandsen.
90 Elimination of Bismuth in Urine after "Bismuth Meal" Roentgen-Ray Examination. (Wismutausscheidung im Urin nach Wismutmahlzeit.) G. *Dorner and* Weingärtner.
91 *Fatal Poisoning from Potassium* Permanganate. (Vergiftung mit *Kaliumpermanganat in* Substanz.) J. Rubin and G. Dorner.
92 *Differential Diagnosis of Tumor* in the Lung and Tuberculosis. H. Grau.
93 *Case of Pluriglandular Insufficiency* plus Serous Meningitis. K. Goldstein.

82. Functioning of Diseased Kidneys.—This is the report in detail of the research described in The Journal, Dec. 11, 1909, page 2043. It fills 76 pages and is accompanied by 8 colored plates and charts, and the findings are compared with those of other investigators in this line. The work issues from Romberg's clinic at Tübingen.

88. The *Atonic* Astatic Type of Infantile Cerebral Paralysis.—*Foerster gives 22 illustrations to show the* special features *of this form of paralysis as observed in 4 typical* cases, *comparing them with other types of paralysis in children.*

Deutsche medizinische Wochenschrift, Berlin

December 23, XXXV, No. 51, pp. 2249-2304

94 *Inflammation in the Ovaries and Fallopian* Tubes. (Therapie *der entzündlichen* Adnexerkrankungen.) *H. Hofmeier.*
95 The Mechanism *of Regulation* in Complete *Dissociation* between Auricle and Ventricle. (Der Regulationsmechanismus bei der *völligen* [illegible] Vorhof *und* Kammer.) G. F. Nicol [illegible]
96 Experimental Sleeping [illegible] *Schlafkrankheit.*) W. Spielmeyer.
97 *Imitation Psychoses.* (Zur Frage der Induktionspsychose.) Sierau.
98 Retrospect over 2,000 Appendicitis Operations. J. Schnitzler.
99 *Decapsulation of the Kidneys in Eclampsia. (Nierendekapsulation bei Eklampsie.) Johnsen.
100 Rapid Cultivation of Typhoid Bacilli from Blood Clot after Digestion in Trypsin-[illegible] (Die Züchtung von Typhusbazillen [illegible] nach Verdauung desselben in trypsinh[illegible] F. Kirstein.
101 *Reappearance of Leprosy in Central Europe. (Das Wiederaufleben der Lepra in Mitteleuropa und seine Ursachen.) A. Blaschko.

99. Decapsulation of the Kidneys in Eclampsia.—Johnsen reports *3 cases of puerperal eclampsia* in which the pulse of *160 or 180 indicated an* unfavorable prognosis. One patient recovered after 148 convulsions and the decapsulation did *not seem to influence* the outcome which was possibly to be ascribed to the copious saline infusion and venesection, the strength being kept up with milk given through the stomach tube. The convulsions did not cease entirely until the twentieth day. In the 2 *other cases* the decapsulation was followed by rapid recovery from the profound coma, subsidence of the convulsions and of the albuminuria, while the amount of urine immediately increased. One patient succumbed to puerperal sepsis. There are now 42 cases of *decapsulation* of the kidneys in eclampsia on record, and 24 of the patients were saved; excluding all but the puerperal cases, the proportion of recovery is much larger. General anesthesia was not needed in his case, the simple *operation* was completed in 20 or 30 minutes.

101. The Recrudescence of Leprosy in Europe.—*Blaschko* believes that most people are immune to leprosy, but still he congratulates Germany on the recent legislation *which* has placed this disease on the list of those requiring compulsory declaration, urging the necessity for a constant watch *that* the disease be not allowed to get a foothold in the country.

Medizinische Klinik, Berlin

December 19, V, No. 51, pp. 1917-1958 and Supplement

102 Anatomic Foundation for Disturbances in Hearing. (Anatomischen Grundlagen d[illegible] edel.
103 *Modern Obstetrics. ([illegible] *Instilled*
104 Chronic Intoxication [illegible] *for Glaucoma.* A. Elschnig.
105 Test for Detection of Bovine Mastitis by *Examination* of the Milk. (Neues Verfahren zum Nachweis der *Mastitismilch.*) J. Bauer and M. [illegible]
106 Blood *Findings* in [illegible] [illegible]te *Poisoning.* (Ueber einige bei *einer* [illegible] [illegible]iftung erhobene Blutbefunde.) F. Lange.
107 *Fo[illegible] the Ocular Tuberculin Test in Ophthal[illegible] und Verwendungsmöglichkeit der [illegible] der Ophthalmologie.*) A. Wolff-Eisner.
108 The Liver in Respect to Absorption of Fat. (Beteiligung der Leber an der Fettresorption.) K. Glaessner *and G.* Singer.
109 *Clinical and* Experimental Study of Action of *Strophanthin* on the *Cardiovascular* System. (Ueber die *Herz-* und Gefässwirkung des Strophanthins bei gesunden und *kranken* Menschen.) O. Vagt. Commenced in *No. 50.*
110 Treatment *of Acute Cardiovascular* Weakness. (Bekämpfung der akuten *Kreislaufschwäche.*) G. *Liebermeister.*

103. Modern Obstetrics.—Riedel reviews mostly the points in which obstetrics at present differ from obstetrics of a few years ago. The necessity for the accoucheur abstaining from septic contamination is one of the most prominent features of modern obstetrics. When a physician has had to incise a felon recently he must refrain from releasing the placenta with his hand in the uterus. In febrile lying-in cases the general care of the body, the mouth and skin, and regulation of sleep and diet are important features. The day of alcohol treatment is past. More and more in Germany abstention from douches, disinfection, etc., is accepted as the rule. He commends the Momburg belt tourniquet as a most effectual and harmless method of controlling post-partum hemorrhage from atony. The Wassermann test has demolished both the Profeta and Colles laws. He rather discredits the scopolamin-morphin "twilight sleep" on account of its drawbacks, but adds that a promising prospect is opened by recent attempts to control the pains of labor by application of cocain to the so-called genital points in the nose, the inferior turbinate and a spot on the septum.

107. The Conjunctival Tuberculin Reaction in Ophthalmology.—Wolff-Eisner reiterates that the great advantage of this technic is the absence of the focal reaction which otherwise might lead to the spread of the process, and there is no means to keep a focal reaction under control. Another advantage of this technic is that a positive reaction is obtained only with existing active tuberculosis. This technic is not adapted for ophthalmology as the test is contraindicated by lesions in the eyes. The only way in which it could be used by ophthalmologists would be by repeated instillation of minute amounts of tuberculin to induce a focal reaction in the internal eye. The focal reaction here might prove useful for diagnosis and could be more readily kept under control in the eye.

Monatschrift für Kinderheilkunde, Leipsic

October, VIII, No. 7, pp. 377-448

111 Elimination of Lactase and Sugar in Prematurely Born Infants. (Laktase und Zuckerausscheidung bei frühgeborenen Säuglingen.) H. Nothmann.
112 Experimental Albuminuria Induced by Mechanical, Bloodless Means, and Production of Nephritis in Rabbits. (Ueber mechanische unblutige Hervorrufung von Albuminurie und Erzeugung von Nephritis bei Kaninchen.) R. Fischl.
113 Relations between the Food and the Sebum in Children. (Hauttalg und Ernahrung bei Kindern.) W. Birk.

Münchener medizinische Wochenschrift

December 21, LVI, No. 51, pp. 2617-2672

114 *The Benefits of the Hystereurynter in Placenta Prævia. (Wie sind bei der Placenta praevia die Erfolge für Mutter und Kind am zweckmässigsten zu bessern?) W. Hannes.
115 Operations on and Protheses for Lower Jaw. F. König.
116 Experimental and Morphologic Studies on Vaccine. S. v. Prowazek and J. Yamamoto.
117 The Hemolytic Test in the Insane. (Untersuchungen zur Muchschen Hemmungsreaktion.) E. Stilling.
118 *Formation of Vagina from Loop of Small Intestine. (Scheidenbildung aus einer verlagerten Dünndarmschlinge.) A. Mueller.
119 *Treatment of Severe Unilateral Pulmonary Tuberculosis with Surgical Pneumothorax. [illegible] einseitiger Lungentuberkulose mit [illegible] Pneumothorax.) L. v. Muralt. Commenced in No. 50.

114. Treatment of Placenta Prævia.—Hannes remarks that tamponing the vagina is of not the least use in arresting hemorrhage from a placenta prævia. Compression to be effectual must be applied directly on the placenta, pushing it back into its place, and this is accomplished in an ideal manner by the inflatable bag introduced into the membranes. It acts as a tampon, as a labor contraction-promoting element, and also as a gentle dilating force. The bag is boiled and kept in sterile glycerin. It was thus applied in 246 cases of placenta prævia at the Breslau maternity between 1894 and 1908. Fully 70 per cent. of the children were born alive, surviving the first few days, and 83 per cent. in the cases in which only the inflatable bag had been used. He compares these figures with the statistics of other methods elsewhere, all showing a mortality for the children ranging between 60 and 80 per cent. The results were equally favorable in respect to the mothers; only 8 of the 143 treated with the inflatable bag alone succumbed, that is, 5.5 per cent., and these deaths might have been prevented by earlier application of the bag; 1 died of eclampsia, 1 from air embolism after version, 1 from a cardiac defect, and 4 from sepsis already developed when brought to the clinic. The mortality from infection was thus 1.8 per cent., or, excluding the cases of preceding infection, only 0.9 per cent. The bag imitates physiologic conditions, but it requires the constant presence of the physician. Hannes is convinced that the more prevalent the use of a hystereurynter with placenta prævia and the earlier it is applied in the individual case, the more children will be born alive and the more mothers will survive.

118. Formation of Vagina out of Loop of Small Intestine.—Mueller describes a case in which Mori's technic was applied with complete success. The patient was a healthy young woman with no trace of a vagina or menstruation but soon to be married. A loop of the small intestine that could be brought down to the vulva was resected for about 14 cm. and the piece cut out was wrapped in gauze while the stumps were united with an end-to-end suture. The resected piece with its attached mesentery was then brought down through the peritoneum between the rectum and bladder, the lower end of the strip still covered with gauze, the upper end closed with a three tier suture. Five catgut sutures fastened the lower end of the intestine to the lips of the wound in the vulva. The operation required two and one-third hours and was done under scopolamin-morphin, chloroform and ether, followed by saline infusion. Convalescence was rapid without any drawbacks, as also in Mori's case; the new method therefore, he thinks, deserves to rank as a typical vaginoplastic operation. He suggests that this same technic may prove useful for bladder and other defects. The surgeon was Prince Ludwig Ferdinand of Bavaria, M.D.

119. Treatment of Pulmonary Tuberculosis with Surgical Pneumothorax.—Muralt reports 10 cases remarking that 7 were regarded as hopeless until the therapeutic pneumothorax was induced as the last resort. One patient is now completely cured, with others on the road to recovery. The method is applicable only for severe unilateral pulmonary tuberculosis and it is accompanied by certain dangers and liability to complications. The physician has to debate whether to offer the patient this chance or let the disease proceed unchecked, the same as in case of a malignant tumor. Increasing experiences will define the indications still better but even at present he regards the method as having won a permanent place for treatment in certain cases of pulmonary tuberculosis.

Therapeutische Monatshefte, Berlin

December, XXIII, No. 12, pp. 623-691

120 *Shoulder Arthritis responsible for Neuralgiform Pain in Arm. (Omarthritis mit Brachialgie und ihre Behandlung.) A. Goldscheider.
121 Importance of Albumin in Infant Feeding. (Bedeutung des Eiweisses der Nahrung in der Diätetik des gesunden und kranken Säuglings.) L. Langstein.
122 Treatment of Acute and Chronic Endometritis. R. Birnbaum.
123 What Ehrlich has Accomplished in Treatment of Trypanosome Infection. (Die Ehrlichsche Chemotherapie der Protozoenkrankheiten.) C. Schilling.
124 *[illegible] on Peristalsis. (Einfluss der Abführmittel auf die [illegible] R. Magnus.
125 Mode of Action of [illegible] der Wirkung von Schlafmitteln.) [illegible] und R. W. Rosemund.
126 Ergot. (Ueber Mutterkorn.) W. Heubner.

120. Inflammation of the Shoulder Joint.—Goldscheider calls attention to a type of inflammation in the shoulder joint which causes little local disturbance but induces severe pain in the arm down to the hand. The disturbances in the arm and hand entirely overshadow the mild causal affection in the shoulder. The connection, however, is soon rendered evident by the subsidence of all trouble as the omarthritis is cured. Closer analysis shows moreover that the pains in the hand and forearm occur with movements in which the shoulder has to participate. Without treatment of the shoulder trouble all measures against the brachialgia are ineffectual, but, on the other hand, the nervous symptoms in the arm require treatment with the arthritis. A general course of tonics and sweating procedures for several days may be required, with heat applied to the shoulder, and use of a sling for several days. An electric-light cap, fitting over the shoulder, has proved useful in his experience. These measures should be supplemented by the salicylates, and this treatment should be kept up for several weeks. A little passive and active movement of the shoulder joint should be commenced after the second week, brief but frequently repeated, and always very gentle. He warns that unless the scapula is held by another person while the shoulder is being exercised, the desired and supposed mobilization is not realized. The pains in the arm generally persist until the joint can be exercised, and then they subside spontaneously. The pain in the shoulder and the radiating brachialgia both vanish when the shoulder can be moved freely enough for the ordinary demands on it.

124. **Influence of Purgatives on the Gastrointestinal Movements.**—Magnus has been studying with the Roentgen rays the influence on the digestive tract of several of the most common purgatives. Each seems to have its own mode of action. He states that senna acts on the large intestine alone, castor-oil influences the small intestine, stimulating it to active movements, while magnesium sulphate prevents the absorption of water in the intestinal canal but displays no power to stimulate the movements of the intestine.

Therapie der Gegenwart, Berlin

December, L, No. 12, pp. 553-600

127 *Chronic Fibrous Meningitis. (Schwartenbildung am Rückenmark.) F. Krause.
128 *[illegible] Diagnosis and Prognosis of Tuberculous Pseudo- [illegible] hardt.
129 * [illegible] rue Angina Pectoris. M. Michaelis.
130 * [illegible] O. v. Herff.
131 * [illegible] autdesinfektion bei internistischen
132 *Prevention of Thrombosis in Typhoid. (Zur Verhütung von Venenthrombosen beim Typhus.) G. Klemperer.

127. **Chronic Fibrous Meningitis.**—Krause gives an illustrated description of three cases of what was supposed to be an intradural tumor compressing the spinal cord in the neck, but which proved to be a localized induration, the tough fibrous mass involving or clinging to the spinal cord and being detachable only with the knife. The cases show that a longitudinal incision can be made in the spinal cord without severe injury resulting. This suggests that tumors in the spinal cord need no longer be regarded as necessarily contraindicating surgical interference. Improvement followed the removal of the fibrous patch in each case, but a complete cure is scarcely probable on account of the nature of the process. The prognosis with this fibrous meningitis is therefore less promising than for actual intradural tumors which are generally circumscribed and do not involve the spinal cord except by their mechanical pressure. He has opened up the spinal cord in 36 cases of such tumors and has lost only 9 of the patients while a number were completely cured, even the severest paralysis retrogressing after the operation. In his last series of 10 intradural tumors all but one of the patients were cured, this patient succumbing to pyelonephritis and exhaustion.

128. **Tuberculous Pneumonia.**—Gerhardt discusses the differentiation of the acute pseudolobar form of tuberculous pneumonia which simulates ordinary croupous pneumonia at first and only gradually discloses its malignant nature. The lack of a crisis, of dyspnea and cyanosis, occurrence of the diazo reaction, and the green sputum without tendency to jaundice, may suggest the tuberculous origin. Among 99 pneumonia and 237 tuberculous cadavers examined during the last two years at Basel the two diseases were found combined in only 10; in 4 of these the tuberculosis was evidently an old and encapsulated process. The leucocyte count has considerable differential importance, Gerhardt says, as it is generally high in pneumonia in the young while in acute tuberculous processes it is as a rule close to or below normal. In the 6 cases of tuberculous pneumonia examined during the last year the leucocytes ranged between 4,500 and 8,000, but in another case reported in detail the leucocytes numbered 14,000. This case shows further, he asserts, that acute hemorrhagic nephritis may accompany tuberculous pneumonia. The finding of bronchial conglomerates in the sputum usually speaks for fibrinous pneumonia, but in one case in his experience bronchial clots were coughed up five or eight times a day, sometimes fully 4 or 5 cm. long and ramified, but autopsy revealed merely an ordinary tuberculous pneumonia with cheesy degeneration. In another case described, the typical pulmonary tuberculosis ran the usual course at first but then gradually restrogressed to complete recovery, the patient, a man of 47, regaining his former health and weight. He had been under treatment six years before for cough and night sweats which had subsided during a stay in a sanatorium.

129. **Treatment of Angina Pectoris.**—Michaelis describes the treatment of the paroxysm and, in the intervals, removal of the cause and measures to increase the resisting powers. He has never witnessed any fatality from morphin but has always found it efficient in relieving the pain besides combating the spasm. Nitrite of amyl, he says, not only relieves but keeps the patient tranquil when he knows that he has it always with him. Local heat is also useful during an attack, and application of dry cups in the axilla or on the back. When there is much dyspnea inhalation of oxygen is extremely beneficial. If the patient shrinks from the use of a mask, a funnel can be fitted on the tube. The mechanical support of the heart region by a pad, exerting slight pressure, relieves some patients and helps to ward off attacks. Sleep is indispensable and hydrotherapy is very useful. In prophylaxis, potassium iodid should be given in not too small doses and should be kept up for a long time. Michaelis does not ascribe much importance to heredity. His experimental research has shown the possibility of development of a collateral circulation. The tendency to arteriosclerosis should be combated by the usual measures.

130. **Acetone-Alcohol Disinfection.**—Further experience has confirmed von Herff in his favorable verdict on this method of disinfection, which was described in The Journal, Feb. 27, 1909, page 744. He has modified the method a little, especially for hair-covered surfaces, by using a varnish for the field of operation, in addition. His formula for this is 10 parts each of benzoin and dammar resin in 100 parts ether, stained with 20 per cent. of an alcohol iodo-iodid solution (7 parts iodin, 5 parts potassium iodid and 100 parts alcohol). Two years' experience with this technic has demonstrated to his satisfaction the superiority of this simple and convenient method above all other technics in which soap and water are permitted. He rubs the field of operation for 5 minutes with the 10 per cent. alcoholic acetone solution and then applies the varnish. As the best criterion of the method he presents his experience with 280 suprasymphyseal transverse incisions without a single primary operative peritonitis.

131. **Iodin Sterilization.**—Umber lauds the superiority of the method of disinfecting the field of operation, dry, by merely swabbing with tincture of iodin. He has used it exclusively during the last year and commends it to internists and general practitioners as the simplest and most effectual of all measures yet introduced.

132. **Prevention of Venous Thrombosis in Typhoid.**—Klemperer has had no complications of this kind in his practice since he has introduced as a routine measure the passive exercising of the legs at the hip and knee. The nurse is trained to extend and flex the leg and thigh from 12 to 15 times at 2 or 3 hour intervals. This exercise is not exhausting while it prevents stagnation in the circulation and it has the further advantage that the nurse is busied with the patient more continously. Before this measure was introduced he used to have venous thrombosis in about 10 per cent. of his typhoid cases but there has been nothing of the kind since.

Virchows Archiv, Berlin

December, CXCVIII, No. 3, pp. 385-572

133 Traumatic Necrosis and Regeneration of Striated Human Muscle. F. Pielsticker. Commenced in No. 2.
134 Histology of So-Called Accessory Pancreas. H. v. Heinrich.
135 Local Changes in Tissues Induced by Lead Salts. (Oertliche durch Bleisalze im Gewebe hervorgerufenen Veränderungen.) Kumita.
136 Primary Syncytium-Endothelioma of Lymph Gland in Carotid Region. C. Ciaccio.
137 Influence on Endocardium of Injection of Cancer Extract. (Beeinflussung des Endokards durch krebsiges Material.) L. Panichi and C. Guelfi.
138 Elastic Tissue of Nipple. (Elastisches Gewebe der Mamilla im normalen und pathologischen Zustände.) E. Savini and T. Savini-Castano.
139 Partial Aplasia and Giant Growth in the Mammalian Ovary. H. Rehberg.
140 Pathology of Ovary in the Hen. (Hydrops follicularis, konglomerie[illegible] und Adenom des Ovariums von Gallina domestic[illegible]
141 Formations [illegible] in the Spleen of Tuberculous Guinea-P[illegible] Gebilde in der Milz des tuberkulösen [illegible] R. Kawamura.
142 *Sarcoma o[illegible] (Ausgedehntes Medullarsarkom des Oesophagus.) [illegible]
143 Abscess of the Spinal Cord. (Zur Kenntnis des Rückenmarksabszesses.) A. Wolff.
144 Arteriosclerosis and Resulting Changes in the Vessel Nerves. (Zur Frage der Arteriosklerose und der Gefässnerven-Veränderung bei derselben.) Y. Oguro.

145 Tubercle Bacilli in the Intermuscular Lymph Glands in General Tuberculosis in Cattle. (Untersuchungen zur Frage des Vorkommens latenter Tuberkelbazillen in den intermuskulären Lymphdrüsen generalisiert tuberkulöser Rinder.) W. Jonske.

142. Sarcoma of the Esophagus.—Rieke reports a case of extensive sarcoma of the esophagus causing no symptoms except the inexplicable slow decline, the patient dying of intercurrent pneumonia. He also tabulates the details of 29 other cases of sarcoma of the esophagus in the accessible literature. In all the other cases there was more or less pain, with signs of stenosis, but in the case reported the large tumor was unusually soft and there was no breaking down of tissue; the surface was thus left smooth and yielding and there was no interference with the passage of food although two-thirds of the esophagus were occupied by the knobby tumor, entirely encircling it but with no involvement of the environment.

Wiener klinische Wochenschrift, Vienna

December 23, XXII, No. 51, pp. 1777-1812

146 Theory of Respiration of the Tissues: the Intermediary Bodies. (Gewebeatmung durch Intermediärkörper.) S. Fränkel and L. Dimitz.
147 *Mode of Action of Adrenalin Administered by Various Routes. (Wirkungsweise des Adrenalins bei verschiedener Applikation und das Auftreten desselben im Harn.) W. Falta and L. Ivcovic.
14[illegible] [illegible] of Ovarian Substance on Tubercle Bacilli. [illegible] Ovarialsubstanz auf Tuberkelbazillen.)
1[illegible] [illegible] in the Liver. (Zur Frage der nichtparasitären Leberzysten.) H. v. Haberer.
150 The Absolutel[illegible] regularis perpetuus.) C. [illegible]
151 *Experimental [illegible] noval of Both Suprarenals. [illegible] nach Exstirpation beide[illegible]

147. Action of Adrenalin Administered by Various Routes.—Falta reports from v. Noorden's clinic at Vienna that adrenalin injected subcutaneously or into the peritoneum in laboratory animals has a marked toxic action and no adrenalin appears in the urine. On the other hand, 20 times this dosage and more, given by the mouth, causes no signs of toxic action, while considerable amounts of adrenalin are eliminated in the urine. He thinks that under the influence of the digestive juice and of the mucosa the adrenalin becomes bound in some way which deprives it of its physiologic and toxic properties. Further research seems to demonstrate that the deintoxication of adrenalin occurs, not in the liver, but in the gastrointestinal canal.

151. Phenomena After Removal of Both Suprarenals.—Schwarz announces that mature male white rats possess an accessory suprarenal at the head of the epididymis. This accessory suprarenal contains no medulla, consequently after removal of the other suprarenals the animal still has enough suprarenal tissue left for the vital processes while yet there is no possible production of adrenalin. The animals can thus be regarded as entirely free from adrenalin and yet they do not seem to suffer in the least from the loss of their suprarenals. They are thus peculiarly adapted for research on the properties of adrenalin. One of the most interesting facts learned is that phloridzin is intensely toxic for these animals, while injection of adrenalin seems to annul the toxic properties of the phloridzin. Other facts observed are the disappearance of the glycogen in the liver, increased elimination of nitrogen and general increase in weight.

Zeitschrift für klinische Medizin, Berlin

LXIX, Nos. 1-2, pp. 1-204 Last indexed Oct 16, p. 1344

152 Infection of Man with *Distomum felineum*. W. Rindfleisch.
153 Topography of the Mediastinum with *Heart of Normal* and Pathologic Outline [illegible] n bei normaler und bei [illegible]
154 Transient Disturban[illegible] (Zur Kenntnis der vor[illegible] des Herzens.) E. Mag[illegible]
155 Oral Pulsator[illegible]
156 Kidney and [illegible] Exstrophy of the Bladder. ([illegible] bei einem Fall von Ectopia ves[illegible]
157 Experimental Transmission of Fowl Leucemia. (Uebertragungsversuche mit Hühnerleukämie.) H. Hirschfeld and M. Jacoby.
158 Aortic Aneurism in Youth and After Acute Articular Rheumatism. (Vorkommen von Aortenaneurysmen im jugendlichen Alter und nach akutem Gelenkrheumatismus.) R. Bernert.
159 Diagnosis of Abdominal Cancers and Tumors with Special Regard to the Antitrypsin Test and Casein Reaction. (Beiträge zur Diagnostik der Abdominalkarzinome und Tumoren unter besonderer Berücksichtigung der Briegerschen und der Kaseinreaktion.) R. Schorlemmer and H. Selter.

Zentralblatt für Chirurgie, Leipsic

December 25, XXXVI, No. 52, pp. 1777-1808

160 Acetone-Alcohol Disinfection. (Der Azetonalkohol in der Desinfektion des Operationsfeldes.) O. v. Herff. See abstract 130 above.
161 *Means of Reducing Operative Loss of Blood. (Ueber Versuche, die operative Blutung zu vermindern.) W. Anschütz.
162 *Differential Pressure Procedure for Inducing Local Anemia in Cranial Surgery. F. Sauerbruch. First part in No. 47.

161, 162. To Reduce Operative Loss of Blood.—Anschütz states that for a year or so he has been attempting to reduce the amount of blood lost during operations by confining the blood in the arms and legs, thus shutting off this much from the general circulation. He applies a constricting band as for Bier's constriction hyperemia, and has used this technic in 100 cases with satisfactory results. The idea, he says, was suggested by Dawbarn's sequestration anemia in skull and brain surgery, but he applies his technic also for operations on the neck, chest and back, and does not use the boiling water as Dawbarn recommends. The constricting band is applied an hour before the operation, with the trunk slightly raised. The arterial pulse must be kept palpable. He has found it best to give scopolamin-morphin as a preliminary. The cutaneous incision bleeds as usual but in the deeper layers the venous and capillary bleeding is materially reduced. After ligating the bleeding vessels the wound is sutured and then the bands are removed, first from the arms and in 20 or 30 minutes from the legs too. The influence on the anesthesia and the value of having this large supply of blood free from the toxic drug, which can be returned again into the circulation merely by raising the limbs, are advantages of great moment. When the constricting bands are removed there is no after-bleeding. The Sauerbruch method of accomplishing the same purpose by the differential pressure procedures (mentioned in these columns Jan. 1, 1910, page 90) is much more effectual, Anschütz remarks, but the simplicity and ready application of the constricting band technic adapt it for many uses.

Zentralblatt für Gynäkologie, Leipsic

December 25, XXXIII, No. 52, pp. 1753-1776

163 *Treatment of Pelvic Cellulitis with Saline Injections. (Behandlung parametritischer Exsudate mit Injektion physiologischer Kochsalzlösung.) F. Kirstein.

163. Saline Solution in Treatment of Exudates from Pelvic Cellulitis.—Kirstein has obtained such uniformly good results with this technic that he wishes to acquaint others with it in order that it may be tested on a larger scale than is possible in his service at Göttingen. He relates his experience with it in four severe cases of parametritic exudates causing chronic weakness and comparative disability. In the first case the uterus seemed to be embedded in hard, immovable, only slightly sensitive masses. No limits to the hard masses could be palpated above, and they spread around the rectum, constricting it at one point. The patient was kept in bed, given a tepid full bath every two or three days, with iron tonics, and every day the vagina was swabbed out with 1 per cent. phenol solution through a speculum, and then from three to five syringefuls of physiologic salt solution were injected through the vagina into the region back of the cervix, the cannula being pushed in until it encountered a hard obstacle. Fourteen of these injections were made in all, the capacity of the syringe being 2.5 c.c. The tip of the cannula was pushed into the hard mass each time, and the latter seemed to soften almost at once. When the patient was discharged on the twenty-second day all subjective disturbances had ceased, the hard masses had materially softened and subsided, with no further pressure on the rectum; the uterus was movable, and the woman was able to return to hard work in field and garden without any pain although in sitting she still felt occasionally a little pain. She refused further injections as she felt perfectly well. He has made 60 of these injections to date, and the patients were discharged from the hospital in from 15 to 29 days. The difference in the conditions of osmosis may possibly have something to do with the prompt softening of the exudates, or the fluid injected may induce congestion in the parts, thus realizing therapeutic hyperemia.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 19, XXX, No. 151, pp. 1593-1608

164 Precipitating Power of the Blood in Respect to Colloidal Silver. (Potere precipitante del sangue sull'argento colloidale.) G. Breccia.

December 21, No. 152, pp. 1609-1616

165 The Milk Seroreaction in Malta Fever in Goats in Sicily. (L'infezione maltese nelle capre di Catania.) F. Valenti and V. Panto.

Policlinico, Rome

December 10, XVI, No. 51, pp. 1605-1636

166 *Intravenous Chloroform Anesthesia. (Sulla cloroflebonarcosi.) R. Giani.

167 Pathology of Syphilides of Nervous System. P. Alessandrini.

166. **Intravenous Chloroform General Anesthesia.**—Giani here reports from Durante's clinic at Rome two cases in which a large angiosarcoma of the lip or a benign tumor in the hypophysis was removed under chloroform administered in salt solution saturated with the anesthetic. The injection was made into the saphenous vein about 4.5 cm. from its junction with the femoral. About 55 cm. were allowed to flow into the vein the first minute; 1,100 c.c. of fluid were used in all in the first case, representing 6.6 gm. The anesthesia lasted for forty minutes; seven minutes after cessation of the infusion the patient roused. Traces of albumin were found in the urine during the day but it was normal again by the following morning. There was no tendency to vomiting during the operation or afterward in either case. The relaxation of the muscles was complete by the fifth minute and by the fourth in the second case. In the latter, 1,500 c.c. fluid was infused, with 9 gm. of chloroform, during the 75 minutes required for the operation and the patient roused in five minutes. When the anesthesia was complete the infusion was suspended until the corneal reflex warned that more of the chloroform was required. He does not regard the method as responsible for the slight transient changes observed in the urine, the previous condition of the patients being sufficient to explain it. Nothing of the kind was observed in animals during his experimental research. He was favorably impressed with the advantages and harmlessness of this technic for operations on the head and throat.

Norsk Magazin for Lægevidenskaben, Christiania

December, LXX, No. 12, pp. 1129-1224

168 Urobilinuria. O. Hanssen.

169 *Benzidin and Guaiac Tests for Occult Blood in Feces. (Benzidinproven og guajakproven til paavisning af okkult blod i faeces.) O. Holmboe.

170 Cardiospasm. (Diffus dilatation af Oesophagus uden anatomisk stenose cardiospasmus.) H. Haerem.

169. **The Benzidin Test for Occult Blood.**—Holmboe applied both the guaiac and the benzidin test in 75 cases and the results showed a constant parallel between them, except that in a few instances the guaiac test gave negative findings until after chloroform extraction. The superior simplicity, inexpensiveness and other advantages of the benzidin test commend it, he declares, as superior to the guaiac technic.

Ugeskrift for Læger, Copenhagen

December 9, LXXI, No. 49, pp. 1347-1372

171 Seroreaction in Leprosy. (Wassermann-Reaktion ved Spedalskhed.) Ehlers and Bourret.

December 16, No. 50, pp. 1373-1400

172 *Cure of Chronic Diphtheria Bacillus Carriers. (Uskadeliggørelse af Infektionsbærere ved Difteri.) A. Schiøtz.

172. **Method of Banishing the Bacilli in Chronic Bacillus Carriers.**—Schiøtz was impressed with the fact that an individual with staphylococcus sore throat, installed in the diphtheria ward under a mistaken diagnosis, did not acquire diphtheria. Also that after recovery from diphtheria in several other cases the positive bacteriologic findings in the throat became negative during an intercurrent ordinary sore throat. These experiences suggested that inoculation of the throat with staphylococci might drive out the diphtheria bacilli still lingering there months after convalescence. He has acted on this presumption in six cases inoculating the patients with staphylococci from a pure culture of staphylococci isolated from the throat of a patient in the surgical ward, apparently healthy except for the condition requiring operation. He thus inoculated a young man who had been detained in the hospital for three months as after recovery from moderate diphtheria bacilli were found constantly in his throat. After inoculation with the staphylococci no further diphtheria bacilli could be discovered on two examinations and he was dismissed the fifth day, no longer a bacillus carrier. The second patient was a woman of 55 who had been in the hospital nearly two months; the positive findings became transformed almost at once into negative after the inoculation with staphylococci, so that she could be discharged the fifth day. The other patients were 3 children between 11 and 13 and a woman of 71; he did not wait so long for the bacilli to disappear spontaneously but inoculated them with the staphylococci at once after recovery from the diphtheria as the patients intended to travel or were imperatively needed at home. The experiment proved a complete success in every case, and he intends to make this a routine procedure when the diphtheria bacilli persist abnormally long in the throat, hoping thus to prevent the development of chronic bacillus carriers.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoën. Unter Mitwirkung von Fachgenossen. Herausgegeben von P. Von Baumgarten, Professor der Pathologie an der Universität Tübingen, und E. Tangl, Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Dreiundzwanzigster Jahrgang 1907. Paper. Pp. 940. Leipzig: Verlag von S. Hirzel, 1909.

UEBER DEN EINFLUSS DER BASEDOW'SCHEN KRANKHEIT UND VERWANDTER ZUSTANDE AUF DAS LANGENWACHSTUM NEBST EINIGEN GESETZEN DER OSSIFIKATION. Aus der Poliklinik für innere Krankheiten am Serafimerlazarett in Stockholm. Von J. Holmgren, Leitendem Arzt der inneren Abteilung des Provinzialkrankenhauses zu Falun, Schweden. Paper. Pp. 244, with 2 plates. Leipzig: Druck von Metzger & Wittig, 1909.

OBSERVATIONS ON RABIES: With Special Reference to an Atrophic Form of the Disease Occurring in Animals. (Scientific Memoirs by Officers of the Medical and Sanitary Department of the Government of India. New Series, No. 36.) By Major G. Lamb, M.D., and Captain A. G. McKendrick, M.B. Paper. Pp. 34. Price, 9 pence. Calcutta: Superintendent Government Printing, India, 1909.

A COMPEND OF HISTOLOGY. (Blakiston's Quiz-Compends.) By Henry Erdmann Radasch, M.S., M.D., Associate in Histology and Embryology and Demonstrator of Visceral Anatomy in the Jefferson Medical College. Cloth. Second Edition. Pp. 350, with 107 Illustrations. Price, $1 net. Philadelphia: P. Blakiston's Son & Co., 1909.

THE INSANITY LAW OF THE STATE OF NEW YORK. A compilation of Statutes Relating to the Insane and to Institutions for Their Care and Treatment; to Which are Appended the Official Orders and Regulations of the State Commission in Lunacy. By Frank P. Hoffman. 289 Clinton Avenue, Albany, N. Y. Pp. 93. Paper. 1909.

EXAMINATION OF THE URINE. A Manual for Students and Practitioners. By G. A. DeSantos Saxe, M.D., Instructor in Genito-urinary Surgery, New York Post-Graduate Medical School and Hospital. Second edition. Cloth. Pp. 448, with illustrations. Price, $1.75 net. Philadelphia: W. B. Saunders Company, 1909.

TEXT-BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY. By Elias H. Bartley, M.D., Professor of Chemistry, Toxicology, and Pediatrics in Long Island College Hospital. Pp. 734, with illustrations. Cloth. Price, $3 net. Philadelphia: P. Blakiston's Son & Co., 1909.

EIGHTH ANNUAL REPORT OF THE CENTRAL COMMITTEE OF THE ASSOCIATION OF THE PASTEUR INSTITUTE OF INDIA, together with the Report of the Director of the Pasteur Institute at Kasauli for the Year ending Dec. 31, 1908. Paper. Pp. 33. Lahore, 1909.

STATE OF NEW YORK STATE HOSPITALS BULLETIN. Published four times a year by authority of the State Commission in Lunacy. New Series, Vol. II, No. 3, December, 1909. Paper. Pp. 751. Price, 50 cents. Utica, N. Y.: State Hospitals Press, 1909.

A TEXT-BOOK FOR STUDENTS OF MEDICINE. By N. H. Alcock, M.D., and F. O'B. Ellison, M.D. Preface by E. H. Starling, M.D. Cloth. Pp. 139, with illustrations. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1909.

THE APPROPRIATION OF PUBLIC FUNDS FOR THE PARTIAL SUPPORT OF VOLUNTARY HOSPITALS IN THE UNITED STATES AND CANADA. By S. S. Goldwater, M.D., Superintendent Mount Sinai Hospital, New York. Pp. 53.

THE COMING CONFLICT OF NATIONS, OR THE JAPANESE-AMERICAN WAR. By Ernest Hugh Fitzpatrick. Cloth. Pp. 306. Price, $2. Springfield, Ill.: H. W. Rokker, 1909.

DISEASES OF THE HEART. By James Mackenzie, M.D. Pp. 419, with illustrations. First Edition. Cloth. Price, $5.50. New York: Oxford University Press, 1910.

THE WELLCOME PHOTOGRAPHIC EXPOSURE RECORD AND DIARY. Cloth. Pp. 272. Price, 50 cents. New York: Burroughs, Wellcome & Co., 1910.

INDIVIDUAL RESPONSIBILITY. By Frank W. Patch. Pp. 37. Paper. Price, 50 cents net. New York: Moffat, Yard and Company, 1910.

The Journal of the
American Medical Association
Published under the Auspices of the Board of Trustees

Vol. LIV, No. 6 CHICAGO, ILLINOIS February 5, 1910

Address

IMAGINATION AND IDEALISM IN THE MEDICAL SCIENCES *

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NEW YORK

The presidential invitation in response to which I am about to address you to-day was welcome to me because it offered a rare chance to express some views of medical progress which I think are too seldom presented to the student. I have in mind the influence of imagination and idealism on the growth of medical discovery. Vividly recalling, as I do, the experiences of my own student days, more than a quarter century past, I fancy you as coming to the acquisition of the myriad facts of medicine with little to tell you of the intellectual forces and historical sequences by which those facts have emerged. If this surmise be correct, it follows that you incline to take a static rather than a dynamic view of the nature of scientific medicine, in the sense that you regard medical lore as something much more fixed than is actually the case. In reality, our science is fortunately plastic, constantly subject to revision of its facts, and ever ready to welcome new interpretations of old facts as well as new discoveries, both great and small. This very plasticity it is that makes progress attainable and fascinates our minds. But our text-books and our lectures are necessarily conservative and dispose us strongly to the notion of fixity of facts, making our minds statical in conception. I would like to dispel, in a measure, this retarding conception by telling you something of the ways in which gifted and trained minds have enriched the medical sciences by significant discoveries. And of the qualities underlying such discoveries I would emphasize especially the rôle of imagination and idealism.

The fine humanitarian aim of medicine always has been and always will be one of the features that make men love to practice the art. And the idealism that delights in the relief of human suffering and disability will remain alive so long as the healing art itself. But we must not blind ourselves to the fact that this very attitude of eager desire to help our fellows in distress is a source of weakness as well as a pillar of strength. For he who would answer the calls of the sick must resort to direct methods and must generally tread the paths of the obvious. He has not time to turn aside to the indirect ways of winning the citadel, nor, indeed, is he likely to be in that frame of mind which urges to such an approach; he is preoccupied with the crying needs of the suffering or dying man committed to his charge. Yet it is growing every day clearer that the progress of the medical sciences depends in a remarkable degree on discoveries made by indirect methods—that is, by methods not looking to the immediate relief of disease.

These discoveries are made chiefly by men who, while in deep sympathy with the humanitarian aims of medicine, nevertheless find time to turn aside to studies and experiments from which the active practitioners are, in general, excluded, by the circumstances of their lives and the intensely practical nature of their vocation. There was a time when the alert physician or surgeon, with little or no training in the experimental method, might make important contributions to knowledge by following rather evident suggestions derived from the study of patients. The Romans, operating for stone in the bladder; Paré, using the ligature to check hemorrhage on the field of battle; McDowell, successfully removing ovarian tumors, give us examples of great advances along rather obvious lines of development. To-day the chances for significant progress in such evident directions, although not exhausted, are far less frequent. The golden nuggets at or near the surface of things have been for the greater part discovered, it seems safe to say. We must dig deeper to find new ones of equal value, and we must often dig circuitously, with mere hints for guides. Our most effective tools are to be found in the experimental laboratory, where the fundamental sciences, physics and chemistry, come to the aid of physiology, biology, pathology and psychology. I should like to tell you of some of the many instances in which these sciences have come to the succor of medicine and have brought her riches of knowledge unattainable had she been limited to resources belonging to the accumulated experience which makes up the accepted material of medical teaching. If I incidentally say something of the personality of the men who have been the living instruments of this progress, it is in order to give you occasional glimpses into the workings of some of the most original and productive of minds.

I like to think of medicine in our day as an ever-broadening and deepening river, fed by the limpid streams of pure science. The river at its borders has its eddies and currents, expressive of certain doubts and errors that fringe all progress; but it makes continuous advances on the way to the ocean of its destiny. Very gradual has been the progress of its widening and deepening, for it is a product of human ingenuity and artifice, and only skilled engineers could direct the isolated currents of science into the somewhat sluggish stream of medical utility. The names of some of the greatest of these engineers are familiar to you—Vesalius, Harvey, Malpighi, John Hunter, Claude Bernard, Helmholtz, Virchow, Metchnikoff, Pasteur, Lister, Koch, Behring, Ehrlich, Emil Fischer, Weigert, Wright, Theobald Smith, Flexner. Different as have been the achievements of these men, there are some qualities of mind and of heart which nearly all of them have shown in ample measure, and of such qualities none are more evident than imagination, or play of fancy, and personal idealism, using the latter term to mean a readiness to make sacrifices for the sake of lofty achievement. And I think we are quite safe in making the generalization that the discoveries for which we hold these thinkers in honor would have been impossible but for the exercise of these qualities. If this be true, the fact furnishes us with a clue to present tendencies in medicine and shows us to what sorts of gifts we have to look for the significant advances of the future. I, therefore, hope to make good my generalizations by a series of examples.

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* An address delivered at the College of Physicians and Surgeons, Columbia University, Sept. 23, 1909, at the opening of the Medical School.

* Considerations of space compel the abbreviation of this article in The Journal. The Complete article is in the author's reprints.

If we look over any list of the names of the makers of modern medicine, we shall find that they may be classed in two main and definite groups, according to the intellectual trend for which they stand. One group holds the men who look at the problems of medical science largely from the standpoint of structure and arrangement. They have the instincts and interests of the morphologists. They represent anatomy, embryology, pathological anatomy and histology. They have usually been men of powerful and logical minds, craving the positive, the definite and the attainable, either shunning somewhat the speculative aspects of science, or moving uncomfortably in the midst of ill-defined or challengeable facts. In this list belong Vesalius, von Baer, Bichat, Virchow and Weigert, who represent with maximal distinction the group of investigators with dominant morphological tendencies.

In sharp contrast with this definite type stands the second group, made up of men whose interests lie in the study of function, rather than structure, and whose minds, far from being dismayed by the speculative aspects of their studies, invite such speculation so long as it is severely controlled by frequent appeals to facts won by experiment. The members of this small group are dynamically minded, highly imaginative, delighting in the play of forces. They are essentially experimentalists, and their thoughts in leisure hours, as in the hours of work, turn always restlessly and uncontrollably in the same direction—to the planning of new experiments designed to answer the questions uppermost in consciousness, questions having nearly always to do with the phenomena of living beings. Claude Bernard, Helmholtz, Pasteur and Ehrlich are the unexcelled prototypes of investigators of life-phenomena in medicine, and we shall not go far astray if we fancy them as spirits inspired by

"All that is great and all that is strange
In the boundless realm of unending change."

We have also, I think, to recognize an intermediate group of great investigators who, while highly trained in a morphological way, have shown also a deep and productive interest in the functional aspects of organized nature, without, however, attaining the highest levels of achievement in thought on the dynamical side of medical research. In this category we may place Harvey, Malpighi, John Hunter, Johannes Müller, Cohnheim and Robert Koch. And I think we may safely add that most modern investigators, educated under the influence of the strong trend to physiological thought, belong in this intermediate position.

The examples of medical discovery which I shall first bring to your notice I shall select from the first and intermediate groups of workers, reserving the illustrations from the second group for later consideration.

The first great morphologist of modern times is Vesalius, whose claims to recognition rest not merely on his masterly and precise description of the parts of the human body, but also on his abrupt departure from the Galenic traditions and teachings, forced on him by the objectivity and sincerity of his studies. While we must regard the work of Vesalius as evidence of intellectual and logical power, it would be an error to credit him with the highest type of imagination or with elaborate esthetic reactions. The self-willed, clear-thinking man won his triumphs more by force of character and unswerving purpose than by creative intellect; and we see this type of worker repeated in some of our greatest modern anatomists, as also in some fields in which the experimental method is prominent.

The gain in scientific method, initiated by Vesalius, was fixed and established in England by the spirited, penetrating and imaginative William Harvey, whose monumental work proved that all the blood in the body travels in a circuit impelled by the beating of the heart. That a hugely skilled anatomist should have made this physiological discovery is significant evidence that studies in structure may stimulate a labile mind to serious investigation of the functional side of organic nature. Probably the work which Harvey did with his master, Fabricius, at Padua in the anatomy of the vascular system stimulated his interest in the discovery of experimental methods which should expose the true uses of this elaborate mechanism.

The lofty intellect of Harvey was linked with a generous and idealistic nature. His portraits show a formation of head and face that reminds us of representations of Shakespeare. Like Hunter and Darwin, he had the virtue of being extremely slow in publishing. He forgave his many antagonists, notwithstanding the troubles they brought into his life. He says:

> I would not charge with wilful falsehood any one who was sincerely anxious for truth, nor lay it to any one's door as a crime that he had fallen into error. I am, myself, the partisan of truth alone; and I can indeed say that I have used all my endeavors, bestowed all my pains on an attempt to produce something that should be agreeable to the good, profitable to the learned, and useful to letters.

More than a hundred years after the death of Harvey there emerged from obscurity a Scotchman, John Hunter, of such power and versatility as to make him a worthy intellectual successor of the great Englishman. We may take him as our second example of an investigator of our intermediate group, combining the interests of morphologist and physiologist. One example—a celebrated instance—will illustrate the point I wish to make. It was in Richmond Park that Hunter saw the deer whose growing antlers awakened in his mind a singularly fruitful physiological question. What would happen if he shut off the blood-supply of the antler on one side by tying the corresponding carotid artery? Experiment showed that the antler lost its warmth and ceased to grow; but for a short time only was there this check to growth. After a time the horn warmed again and grew. Had he failed to really obstruct the blood flow in the artery? No. Examination showed the carotid to have been securely ligated. Whence, then, came the blood essential for the antler's growth? Through the neighboring arteries that had grown distended, through what we now call the collateral circulation. So was the fact of the collateral circulation revealed. The thoughtful and logical mind of the practical surgeon soon found an important application of this discovery to human pathology. No one had dared to treat aneurism by ligation for fear of causing gangrene. But the existence of a collateral circulation held out a prospect of keeping the parts alive despite the ligation of an important artery. The first trial of the new method on a popliteal aneurism was successful, and the Hunterian operation, as you know it in surgery to-day, came into assured existence. An unimaginative man could not have made this discovery in this manner. Yet Hunter belongs to the logical, independent, matter-of-fact type with fancy well controlled, rather than to the dreamers and poets of science. He was a rough diamond, with an intensely objective nature, and he had corresponding limitations. He is said to have rebelled against the classical teachings of Oxford. "Why, they wanted me to study Greek. They wanted to make an old woman of me!" And when twitted with his lack of knowledge of the "dead languages" he said of his critic: "I could teach him that in the dead body which he never knew in any language, living or dead." The idealism of Hunter showed itself in devotion to work and in fortitude in the adversity of ill health.

I wish now to invite your attention to our second type of investigator—the essentially dynamical or physiological discoverer. The group, as I see it, is a small one. It includes Claude Bernard, Louis Pasteur, Hermann von Helmholtz and Paul Ehrlich.

An admirer said sententiously of Bernard: "He is not merely a physiologist; he is physiology itself"; and the saying has the merit of reminding us of the breadth and depth and originality of his researches. With equal skill he worked at the physical and chemical bases of physiology; and we owe to him our knowledge of the glycogenic function of the liver, the enzymes of the pancreatic juice, the vasomotor system of nerves, diabetes from puncture of the fourth ventricle, besides many minor discoveries and researches and a masterly correlation of the general facts of animal and plant life. Bernard was one of the founders of modern pharmacology. He also foreshadowed in a singular manner and under singular circumstances the modern conception of soluble ferments in micro-organisms, a view which unfortunately brought him into an unpleasant antagonism with his life-long friend, Pasteur.

The research that most fully shows the controlled imagination of Bernard is that which, extending over years, culminated in the discovery of the glycogenic function of the liver, a discovery of the very first significance to physiology and pathology. We know the steps which led him to this discovery, and in retracing these steps we get an edifying glimpse of the workings of Bernard's fertile mind. His ambition was to follow the three great classes of foodstuffs, carbohydrates, fats and proteids, through the organism. He soon felt the necessity of limiting himself to the fate of the carbohydrates, which, besides seeming relatively simple to study, especially attracted him on account of their mysterious relation to diabetes. The first step in the research brought out the fact that cane-sugar, when acted on by gastric juice, undergoes a transformation which adapts it for absorption and utilization by the tissues—namely, a change into dextrose (glucose). He knew from the experiments of Tiedemann that starch is changed into dextrose in the digestive tract before absorption. Bernard asked himself what was the fate of this dextrose. He proposed to trace the course of the sugar from the digestive tract, along the portal vein to the liver, from the liver to the lungs by way of the right heart, and finally from the lungs through the left heart to the various tissues. His idea was that at one of these stations the dextrose disappears, is destroyed or in some manner changed. "If I am able," said he, "to suppress the activity of this station, sugar will accumulate in the blood and a condition of diabetes will be brought about." Here, then, was a highly interesting enterprise. The first thing to do was to feed a dog freely on carbohydrates, kill it at the height of digestion and examine the blood leaving the liver by the hepatic veins to see if any sugar were lost in the liver. Please note that Bernard was helped in this search for sugar in the blood and tissues by the cupric sulphate test for dextrose, just introduced by his friend, Barreswill—a very material help. Sugar was found in abundance in the blood of the hepatic veins; therefore, the liver was not the looked-for place of disappearance of dextrose. "But how do I know," thought Bernard, "that the sugar which I thus find in the hepatic vein is the same sugar as that which I introduced into the portal blood through the food?" To get an answer, Bernard fed a dog on meat only, knowing by experiment that no dextrose would then be present either in the digestive tract or in the portal blood. Then he examined the blood of the hepatic vein for sugar. Great was his surprise to find it loaded with dextrose. His keen intelligence at once drew the correct inference—that the liver is a sugar-making organ and makes sugar out of something which is not sugar, and, furthermore, that within the liver lies the secret of diabetes. Bernard now made a variety of experiments to test the correctness of his inferences. He soon found that sugar was contained in a simple decoction of the liver and that this sugar was dextrose, capable of fermentation and responding to all the known tests. But Bernard did not stop here. His fancy urged him to seek the substance in the liver from which the sugar is produced—the "glycogenic substance" whose existence was inferred from experiment. And in time he isolated the substance which we know to-day as glycogen.

Here, then, was a great triumph of the experimental method in the hands of an imaginative, critical and highly skilled technical worker. The completeness with which the discovery of the glycogenic function of the liver was worked out makes it a model of physiological research for all time. Moreover, the facts elicited by Bernard in this research possess a very broad bearing. They show that the liver has a function as important as, but far less obvious than, the secretion of bile—the first example of an internal secretion. And they prove that animals as well as plants can build up carbohydrate material—glycogen—by means of their own tissues. Finally Bernard very clearly showed that, while the production of glycogen from sugar is a vital act, in the sense of occurring only under conditions of life, the converse process, namely, the formation of sugar from glycogen, is independent of living tissues and may occur as the result of the action of a ferment in the blood.

As Sir Michael Foster said most aptly:

> It is in the putting forth of the hypothesis that the true man of science shows the creative power which makes him and the poets brothers. His must be a sensitive soul, ready to vibrate to Nature's touches. Before the dull eye of the ordinary mind facts pass one after the other in long procession, but pass without effect, awakening nothing. In the eye of the man of genius, be he poet or man of science, the same facts light up an illumination, in the one of beauty, in the other of truth; each possesses a responsive imagination. Such had Bernard, and the responses which in his youth found expression in verses, in his maturer and trained mind took the form of scientific hypothesis.

That Bernard well understood the value of imagination in research and also its dangers is well shown by his admirable and memorable advice to his pupils:

> Put off your imagination as you take off your overcoat when you enter the laboratory; but put it on again, as you do your overcoat, when you leave the laboratory. Before the experiment and between whiles, let your imagination wrap you round; put it right away from yourself during the experiment itself, lest it hinder your observing power.

Let us now bring to your attention some features of the mental life of another great physiologist, Hermann von Helmholtz, representing a very different phase of physiology from that developed by Bernard. Bernard, though accomplished as a morphologist and skilled in mechanical physiology, leaned strongly to the chemical side. He was essentially the animal experimentalist. Mathematics played only the most simple rôle in his researches. Helmholtz, on the other hand, approached physiology on its physical side, and, one may remark in passing, with a quality and amplitude of success unequalled before or since. He used the higher mathematics constantly and they proved keen tools in his hands. Although an experimentalist of the very first order, Helmholtz was not an animal experimenter except in a very limited way, the nature of his themes making vivisection for the most part unnecessary.

Even as a child the mind of Helmholtz was unconventional and inquiring, bent on understanding what was going on about him. The boy cut his own path through the mazes of unassimilable educational offerings. His tastes were definite. He obtained notions of geometry from the blocks with which he played, surprised his mother by experimenting on her linen with acids, made telescopes with spectacle lenses, read books on physics and enjoyed greatly his walks in the country. At the university he assimilated ideas with great ease and showed an increasing interest in physics, which he wished to follow as a profession. But his prudent father urged him to study medicine as a surer means of livelihood. And most fortunate it was for medical science that the gifted young man was willing to take up medical studies, for there arose in him a deep interest in the problems of physiology, destined to bear rich fruit. The duties of an army surgeon took only part of his time and the rest he gave to physics. His original researches began at the age of 21 and continued through a long lifetime, covering an extraordinary range of topics in an original and masterly way. Helmholtz contributes to minute anatomy, lays the foundations of physiological optics and acoustics (with all that this means for esthetics, psychology and metaphysics), gives to medicine the specific and golden gift of the ophthalmoscope, enriches physics with an imperishable statement of the doctrine of the conservation of energy and with original studies on vortex motion, on hydrodynamics, on electrodynamics, on dynamics, on meteorological physics. He broadens chemical theory by the influence of his vortex motion hypothesis and, in a somewhat incidental way, brings new theoretical conceptions into the realm of pure mathematics. As students of the psychical forces that have fertilized modern medicine it is interesting for us to note that Helmholtz disclaimed any intention to be practical in his work. If the themes that happened to absorb his attention led to practical and humanely useful results, he was pleased; but he seldom pursued a practical aim simply because of its utility. He chose his themes because they promised to be intellectually satisfying, giving little heed to the nature of the probable outcome. He framed his experiments so that Nature would have to answer "Yes" or "No" to his questions, thus furnishing him with definite results.

The story of the invention of the ophthalmoscope illustrates the mental processes of Helmholtz in working out an idea. He did not set out to devise an instrument for studying the retina and the ocular refraction, but as he proceeded these important possibilities ripened into definite objects. He says:

> I was endeavoring to explain to my pupils the emission of reflected light from the eye, a discovery made by Brücke, who would have invented the ophthalmoscope had he only asked himself how an optical image is formed by the light returning from the eye. In his research it was not necessary to ask it, but had he asked it, he was just the man to answer it as quickly as I did, and to invent the instrument. I turned the problem over and over to ascertain the simplest way in which to demonstrate the phenomenon to my students. It was also a reminiscence of my days of medical study, that ophthalmologists had great difficulty in dealing with certain cases of eye disease, then known as black cataract. The first model was constructed of pasteboard, eye lenses, and cover-glasses used in the microscopic work. It was at first so difficult to use that I doubt if I should have persevered, unless I had felt that it must succeed; but in eight days I had the great joy of being the first who saw before him a human retina.

The basis for this invention was Helmholtz's knowledge of the anatomy of the eye, his mastery of physiological optics, his experimental ability, and, as stated in his own language, his wish to devise an improved method of demonstrating a somewhat obscure phenomenon to his students. Modesty and generous impulse made Helmholtz say that Brücke could equally well have invented the ophthalmoscope had he only asked himself how an optical image is formed by the light returning from the eye. I doubt if it could be successfully contended that Brücke's actual information about the eye was less than Helmholtz's. Helmholtz himself says that Brücke "was just the man" to make the invention, and by this he must refer to equipment in knowledge. In what, then, did Helmholtz excel Brücke? I would answer, in creative fancy, in imagination. The controlled play of fancy, using the facts of the case for its playground, is what made Helmholtz see the possibilities and see them so clearly as also to make it appear worth while to put energy into the effort to see the retina.

It would be easy to multiply examples of the almost playful way in which Helmholtz utilized the children of his rich fancy to extend the bounds of scientific knowledge. The ease with which he made his intellectual progress is one of the most striking features of his wonderfully creative career. Often on solitary walks in the country he experienced ideas that seemed to clarify refractory problems. From the great wealth of his impressions and associated ideas, arising through the operation of active fancy or imagination, there seems to have been a process of controlled selection and rejection by which the finished products, the great ideas, were built up—a conscious selection not without analogies to natural selection in the upbuilding of the physical machinery. In the entire list of the masters of medicine I think there has been only one mind that can be regarded as belonging on the same lofty level as that of Helmholtz, in respect to controlled yet expansive powers of imagination combined with the energy of performance and the technical training necessary to apply those powers. The intellect of Pasteur, and his alone, has revealed associative power and logical sequences of thought culminating in discoveries fairly comparable to those of Helmholtz in respect to the depth of their psychical basis. And it is probably no accident that the two greatest minds in medicine have entered it on the streams of pure science, Helmholtz as the biological physicist, Pasteur as the biological chemist.

As a human being Helmholtz takes rank with the noblest of men. Considerateness for others and a willingness to help worthy persons were prominent characteristics. He had a calm self-control which still left him natural and simple in human relations, although this fine dignity served as a check to the approaches of shallow and trivial people. Helmholtz was an idealist of the purest type, and never permitted personal interest to interfere with his best aims as a student of science. His was a poetic nature, apt in versification and in music, yet with an intellect so searching that he was not entirely satisfied by esthetic feeling and phantasy, but sought also to understand them. Modesty was one of his greatest charms, and this quality was attractively seen in the sentiment which he expressed on being awarded the von Graefe medal in recognition of his services to medicine through the invention of the ophthalmoscope:

> Let us suppose that up to the time of Phidias nobody has had a chisel sufficiently hard to work on marble. Up to that time they would only mold clay or carve wood. But a clever smith discovers how a chisel can be tempered. Phidias rejoices over the improved tools, fashions with them his god-like statues and manipulates the marble as no one has ever before done. He is honored and rewarded. But great geniuses are modest just in that in which they most excel others. That very thing is so easy for them that they can hardly understand why others cannot do it. But there is always associated with high endowments a correspondingly great sensitiveness for the defects of one's own work. Thus, says Phidias to the smith, "Without your aid I could have done nothing of that; the honor and glory belong to you." But the smith can only answer him, "But I could not have done it even with my chisels, whereas you, without my chisels, could at least have molded your wonderful works in clay; therefore I must decline the honor and glory, if I will remain an honorable man." But now Phidias is taken away, and there remain his friends and pupils—Praxiteles, Paionios, and others. They all use the chisel of the smith. The world is filled with their work and their fame. They determine to honor the memory of the deceased with a garland which he shall receive who has done the most for the art, and in the art, of statuary. The beloved master has often praised the smith as the author of their great sucess, and they finally decide to award the garland to him. "Well," answers the smith, "I consent; you are many, and among you are clever people. I am but a single man. You assert that I singly have been of service to many of you, and that many places teem with sculptors who have decked the temples with divine statutes, which, without the tools that I have given you, would have been very imperfectly fashioned. I must believe you, as I have never chiseled marble, and I accept thankfully what you award to me, but I myself would have given my vote to Praxiteles or Paionios."

If we turn now to Helmholtz's great contemporary, Louis Pasteur, we discern many points of resemblance in the mental endowments and in the careers of these two superlatively eminent masters of medical science. Pasteur, like Helmholtz, was greatly helped in early life by the patient guidance of earnest and capable parents, and, like him, showed a strong interest in poetry and art, the portraits made by Pasteur during his teens showing unmistakable artistic talent. Pasteur's considerable aptitude for mathematics developed later than that of Helmholtz and was of a less original sort, yet served him well, especially in his earlier researches. Both men were endowed with phantasy and associative power of the highest order, but, while Helmholtz seldom departed from the path of strict logical development of his ideas, Pasteur, with his more impetuous nature, sometimes permitted himself to make speculative excursions of a more random kind. Both found their greatest enjoyment in dealing with the development of general ideas, but Pasteur, on realizing his power to help mankind through his discoveries, deliberately turned his rare gifts to the solution of practical problems in medicine, whereas Helmholtz was satisfied to continue to build the foundations for the physiology of the sense organs and for a better psychology and metaphysics. It is very noteworthy that both Helmholtz and Pasteur were deeply influenced in their outlook by certain conceptions of wide applicability. On the other hand, Pasteur's scientific and philosophical thought was influenced definitely and profoundly by the conception of molecular asymmetry in nature. His interest in this subject was awakened by the study of the salts of tartaric acid, which culminated in 1848 with the famous discovery that the optically indifferent or racemic tartaric acid crystallizes into equal quantities of the ordinary dextrorotary tartaric acid and of the newly recognized levorotary tartaric acid. It was Pasteur's interest in the problem of molecular asymmetry, and especially certain theoretical notions on which we need not linger here, that induced him to experiment on the action of micro-organisms on racemic ammonium tartrate, with the striking result that the living beings converted the optically indifferent solution of salts into a levorotary solution. This showed that the dextrorotary constituent of the indifferent racemic tartrate had been assimilated by the micro-organisms, while the levorotary constituent was unaffected. I emphasize these studies of Pasteur's because they were what excited his interest in the then obscure problem of fermentation, which in turn led him to take up those studies of the causation of disease by micro-organisms and those researches on immunity which have revolutionized the entire science and art of medicine. To do anything like justice to these extraordinarily fertile and original researches of Pasteur is wholly out of question here. I can merely direct your attention to the researches which in the fullest way exemplify Pasteur's gift of imagination and power of experimental control. There are six studies or groups of studies whose histories exhibit Pasteur's genius at its best—the research on the tartrates, the investigations on fermentation, the inquiry into the causes of the silkworm disease, and the methods of its eradication, the research on chicken cholera and immunity to it, the research on anthrax, with the extraordinarily dramatic scenes attending the public test of the immunization methods, and finally the masterly researches on hydrophobia.

In all these different groups of researches were displayed the most active powers of associative thought and phantasy, the most admirable capacity for self-criticism. As Pasteur made his publications in a terse, compact style, we cannot always reconstruct his logical processes by reading them. His method of thought and procedure were, however, well known to his colleagues, with whom he loved to discuss his ideas and plans of experiments. They found him spirited, fertile and imaginative in his conceptions, frankly communicative, generous in giving help and wholly absorbed in his work. Like many intensely serious men, Pasteur lacked somewhat the sense of humor. His feelings of partisanship were so strong that he could never overcome his resentment toward Germany, and he permitted this to color even his relations with German scientific workers. Yet one should dwell but lightly on these slight imperfections in a nature of such great gifts and such lofty and unselfish purpose.

At the time when Pasteur was beginning his research on anthrax, a young student of medicine at the University of Strassburg, Paul Ehrlich, was laying the foundations for that uniquely fertile and versatile career of medical research which has made him the most original and picturesque of living investigators of medical science. Although at this time Ehrlich was especially under the direction of the anatomist, Waldeyer, he rapidly developed a capacity for chemistry which was a surprise both to himself and to the chemist, Adolf von Beyer, whose lectures had been systematically cut by the gifted but unconventional student. For unconventional he then was and ever has been, neglecting what he did not like and throwing himself with fervor and intense energy into the solution of the themes that attracted him. From the outset it was clear that Ehrlich would make a career as an experimental investigator. Much of the time he was supposed to spend in taking the usual medical courses he devoted to experiment. When Robert Koch was shown through the laboratory at Breslau by one of the professors his attention was called to a young student working at a desk covered with bottles of dyestuffs. "There is our little Ehrlich," said the professor; "he is a first-rate stainer of tissues, but he will never pass his examinations." The prediction about the examinations came perilously near fulfilment; Ehrlich made bad flunks and it is hinted that he would never have received his degree had not he made a discovery—namely, the existence of the peculiar type of leucocyte which is known to us as the "plasma-cell." The faculty reasoned that it would be improper to keep so promising and original a worker indefinitely in an undergraduate position, and it is suspected that they mitigated the rigor of the examinations in order to relieve their own embarrassment.

A noteworthy example of Ehrlich's free-lance method is seen in his peculiar way of working at chemical problems. Though a highly accomplished organic chemist, both as to theory and a singularly rich acquaintance with the properties of substances, Ehrlich rarely uses any but the simplest methods and quite refuses to work quantitatively. His personal experiments are almost exclusively test-tube experiments, most ingeniously contrived to yield a rich fund of knowledge. He says:

> For the pure chemist, who proceeds analytically or synthetically, my way is only an unending *pons asinorum*. The chemist starts from two substances, *a* and *b*, both of which he knows, and by synthesis derives substance *c*. Through this procedure a sure insight into the nature of the process becomes possible. This is exactly as if one drew a circle with the calipers. On the other hand, one may define a circle by means of a large number of tangents, and the chemistry which I practice is a kind of tangent chemistry. Through my schooling in this tangent chemistry I have had a great advantage in dealing with immunity problems. If one cannot define chemically the components entering into action, as is frequently the case in immunity problems (for example toxin and antitoxin) one cannot draw the circle in the usual chemical way and the nature of the reaction process must remain a closed book. But for one who has worked for decades, as I have done, at tangent chemistry, the task is no longer so difficult; and I think that in this way, through the recognition of toxoids and their quantitative formation from toxins, I have succeeded in correctly bringing out the two functional groups, the toxophore and the haptophore, which indeed furnish us with the key to the entire doctrine of immunity.

Ehrlich's dominant interests during the student days were histology and chemistry, but his attitude toward these subjects was even then highly individual, original and laden with the dynamic spirit—the spirit that seeks to gain a conception of what goes on in the living cells. Throughout his career Ehrlich has sought to use his knowledge of histology and of chemistry to gain light on the processes of life. The clarity of his visual perceptions and the tenacity of his visual memories have enabled him to cultivate a sort of chemistry peculiarly suited to this aim. Ehrlich early recognized that he had a peculiar gift of being able to recall and represent mentally the constitution of a large variety of substances and with little effort to picture vividly their interactions. He definitely states that he considers this chemicoplastic memory his greatest scientific endowment, and it is clear that the long line of his investigations is founded on this faculty and on his taste for rational therapeutics. Like Helmholtz and Pasteur, Ehrlich has been guided in his experiments by certain well-defined general conceptions. The most important of these in Ehrlich's case is the idea that the living cells have many different kinds of definite chemical affinities, by virtue of which they are able to enter into combination with some compounds and not with others. This idea is at the foundation of Ehrlich's well-known researches on the basophilic, acidophilic and neutrophilic leucocytes, on the distribution of dyestuffs in the so-called "intravital" staining, on the cell affinities of the different alkaloids, on the side-chain theory of immunity and the measurement of the strength of antitoxin, and on the organic chemical compounds of arsenic in relation to the trypanosomes of the sleeping-sickness.

The recital of Ehrlich's achievements in medicine would demand a voluminous space, for his activities have been intense and varied. The pharmacological studies, the work on immunity in its different phases (including the action of hemolysins), the experimental studies on carcinoma—each of these deserve the most careful study, not merely because of actual results gleaned, but on account of the luminous ingenuity of the methods employed.

It is in the field of immunity that Ehrlich has won his brightest laurels. The discovery that vegetable poisons like abrin and ricin excite antitoxicity, the development of a method of measuring the activity of the diphtheria antitoxin—a standard method the world over—the extremely ingenious studies of hemolysins, the recognition of the laws of transmission of immunity from mother to child, and the discovery of immunity in trypanosomes exposed to the action of arsenical poisons, are all contributions of far-reaching import. And cementing all Ehrlich's special investigations of immunity, relating them also with his work on the distribution of dyestuffs, alkaloids and nutritive materials generally, stands the famous "side-chain" theory. This bold, elaborate and refined hypothesis of the nature of immunity, this offspring of rich phantasy and fertile experimentation, was long the source of discord and strife among bacteriologists and pharmacological theorists. At the height of the controversy Ehrlich once remarked: "They are shooting into my antitoxin tower and I will reply vigorously." To-day a welcome peace—perhaps merely a truce—has succeeded the sometimes heated contest, and only an occasional stray shot is heard. However widely the rival camps may disagree on certain points, there seems now to be a common ground. The centrally emergent conception in immunity appears to be the existence of a specific binding or anchoring avidity between the immunity-excitant or antigen and certain substances belonging to the living cell—the so-called receptors. This conception and the extensions that follow from it—including, for example, the now familiar view that the antitoxin freed in the blood represents excessively multiplied receptors disengaged from the stimulated cells—are peculiarly original with Ehrlich. His mind reached this central idea, because it is a mind beset by chemical phantasy, a mind seeking to explain all biological phenomena in medicine by means of chemical principles. In the special case of the side-chain theory, Ehrlich's intimate knowledge of the chemical and biological properties of the dyestuffs played a very large part, and it should be noted that the theory is in this sense a hybrid, that it originates not from a purely chemical conception, but from a chemical and a biological idea. Slowly that theory grew to its present full proportions and its somewhat bewildering intricacies of superstructure. In this elaborate form there is doubtless much in the hypothesis that can be criticized if we turn to it in the hope of learning the absolute truth in respect to immunity. It is perhaps just to say that the value of the theory lies largely in the fact that it expresses relationships. Time and experiment will doubtless mold it anew. But whatever changes in form it may suffer, the data collected by Ehrlich and correlated by him will long remain a monument to his experimental genius and creative imagination. And the fair-minded critic will remember the great practical services which this theory has rendered and is still rendering to medicine, in enabling investigators to pursue their experiments in new territories of research in immunity by giving them points of attack and lines of advance. It is stated by Wassermann, the discoverer of the serum reaction of syphilis, that he could never have worked out this biological reaction had he not possessed the side-chain hypothesis as a guide. It seems clear, too, that the intelligent use of this hypothesis is destined to aid us greatly in learning something of the seat and mode of action of many drugs of which we now know but little. And, again, there are unmistakable signs that the side-chain conception will give many a clue to the understanding of the nutrition of cells.

Ehrlich's mind is singularly labile, playful and restless. It passes quickly and casually from one subject to another, yet without the least confusion. It is always on the alert, ready to dally with a new fact or a new idea, in the hope that it will illumine one of the many experimental interests with which consciousness ever teems. Ehrlich reads medical literature rapaciously but selectively, ignoring all but the themes in which he has a special interest, as one reads who reads for his pleasure and not for duty's sake. This unusual method is extremely effective and gives a highly serviceable command of facts likely to be helpful in extracting from Nature new facts by experiment. Even during holiday seasons, this spirituelle, penetrating mind knows no real rest, for the time is beguiled by the reading of detective stories, even second-rate ones, in the hope of finding some new and complicated situation, for which an ingenious solution can be invented.

It is a cheering sign of the times that the cultivated classes are beginning to recognize the essential rôle of imagination in the progress of the biological and medical sciences. President Eliot remarks that the nineteenth century has taught us that, on the whole, the scientific imagination is quite as productive for human service as the literary or poetic imagination. "The imagination of Darwin or Pasteur, for example, is as high and productive a form of imagination as that of Dante, or Goethe, or even Shakespeare, if we regard the human uses which result from the exercise of imaginative powers and mean by human uses not merely meat and drink, clothes and shelter, but also the satisfaction of mental and spiritual needs." The history of medical discovery is a long chain of imaginative experiences whose links have been welded and fixed by passing through the fiery ordeal of appeal to experimental tests. And could we but set forth, in fitting language, the true story of these mental experiences, with all their vicissitudes of hope and despair, success and failure, we should certainly dispel for all time the wide-spread notion that medical research is a dry and painful task, to which only an unimaginative mind can turn with satisfaction.

There is a phase of imaginative thought and feeling which expresses itself in a strong desire to pursue ideal ends, even at the cost of the ordinary prizes of life, wealth, material power and physical comfort. This idealism has been a very pronounced attribute of the great masters of medicine. In a noteworthy degree they have all possessed it and some, like Helmholtz and Pasteur, have led lives of unpretentious, simple self-sacrifice in admirable harmony with the illustrious and superlative service they have rendered mankind. This idealism, while clearly a moral trait in the conventional sense, seems to be the offspring of the creative intellectual attitude and especially of an absorption in work, which leaves the mind neither time nor inclination to seek the petty advantages for which most men at some time in their lives find themselves struggling. For these reasons, indifference to vulgar aims and aloofness from commonplace interests are apt to be found where there is preoccupation in productive work of a high order, whether this be concerned with science or not. But in the medical sciences the rewards are so great, in the sense of personal satisfaction from superior achievement, that there is an especial and peculiarly potent incentive to repress those exaggerations of the self-preservative instinct which show so insistently in the selfish conduct of commonplace persons.

There is a special quality pertaining to the greatest masters of medicine which arrests our attention when we survey their life work. This is the wonderful variety and number of their discoveries. We are struck with this quality of productivity in the works of Hunter, Malpighi, Johannes Müller, Claude Bernard, Helmholtz, Pasteur, Koch and Ehrlich. In some instances the range of topics is relatively narrow, as in the case of Koch, or extraordinarily wide, as in the case of Helmholtz, but in nearly all instances the great masters have been repeatedly productive, and this varied productivity on a high plane is an unfailing mark of genius. On the other hand, it is necessary to recognize that very important discoveries in medicine have been made by men who once in their lives, and once only, have attained a high level of achievement. There are two examples of this singularity in discovery which I would bring particularly to your notice—one the discovery and development of the antiseptic method by Lister and the discovery of general anesthesia by Morton.

When Lister visited Pasteur in 1865 he was much impressed by the attitude of the great master in regard to the wide part played by micro-organisms in fermentation and disease. As a surgeon he had a deep interest in the diseases of wounds, and the idea established itself in his mind that such diseases might be due to a kind of fermentation which might be checked or prevented by the use of antiseptics. This idea, worked out by Lister with the utmost patience and superior intelligence, gave the wonderfully far-reaching results with which we are all familiar. The important results of Lister's methods are not limited to the surgical diseases of human beings. By making it possible to experiment on animals in wholly new ways, these methods have placed in the hands of the physiologist a powerful instrument for the extension of medical and biological knowledge along most significant lines of progress. We have, therefore, to concede that Lister's discovery is one of such rich fertility as to make it rank among the great discoveries of medicine. Yet it cannot be claimed that Lister was a great scientist. In training, in originality, in versatility and in imagination he is far from being the peer of the great masters of whom we have spoken. And we see here, again, that the practical import of a discovery is no arbitrary measure of the scientific attainments of the discoverer.

Hardly less valuable an asset of practical medicine is the discovery of general anesthesia, but it appears that the qualities of mind revealed by Morton belong to a level less high than those of Lister. Morton was an alert, enterprising young dentist in Boston, who, while educating himself in medicine, successfully practiced his calling and invented an improved system of dental plates. The use of this system required the free removal of carious and otherwise diseased teeth, and this caused great pain. To relieve this pain, Morton pertinaciously sought an efficient anesthetic. After many unsatisfactory trials with different substances, he experimented with sulphuric ether, given him by Jackson, the professor of chemistry in the Harvard Medical School. In 1846 he succeeded in demonstrating the efficacy of sulphuric ether as a general anesthetic and thus gave to mankind a precious, almost unequalled boon.

This great discovery cannot be reckoned as one of high fertility, since, aside from anesthesia, it has not opened new lines of thought or practical service. Neither can it be said to have sprung from a scientific mind of exalted qualities and attainments. It has the earmarks of a child of empiricism. Morton's scientific knowledge was slight, and his mind had a strong commercial bent. The singularity of his discovery, the only one of his life, points neither to fertility of resource nor to lofty imagination, but to the fortunate combination of conditions under which he insistently exercised his ingenuity.

Having told you something of the qualities distinguishing the modern masters of medicine, I now ask your permission to speak of certain aspects of these qualities as they seem related to the career of the thoughtful student of medicine. And first of all I would correct in your minds any impression I may have made of a discouraging nature. Having drawn our examples of medical advance so largely from the work of supremely gifted men, workers in laboratories, many of whom have not been practitioners of medicine, or have only casually practiced, it may possibly appear that you are confronted with the paradox that an essential condition of the loftiest success in medical science is to abstain from the practice of medicine. There is, indeed, a measure of truth in this, for, as I have already tried to show you, entire absorption in the practical problems of medicine unfits men to pursue with the highest success the career of discovery. In this there is naught of real discouragement, but only a sign that the problems of disease, as we meet them by the bedside, are far too complex to permit solution there. There was a time when all medical discovery was based directly on observation at the bedside. Then, with the growth of anatomy, the invention of the microscope and the coming of the twin hand-maids of medicine, physics and chemistry, the laboratories spring into existence. Much there was that could be discovered only by laboratory methods, and so it happened that some men were justified in working at medicine, and able to become masters of medicine, though they scarcely left their laboratories. But I would have you note well that we have now entered on a time when the clinics and the laboratories must work more and more closely together, aiding each other at every step to bridge the wide chasms of our ignorance. And just here lies one of the greatest opportunities for the alert student of medicine, undergraduate and post-graduate to do something worth while. For the problems are so many, so varied and so widely graded as to difficulties that for almost every earnest student there is at hand a theme suited to his powers and training.

I have intimated my belief that the powerful and controlled imagination is generally associated with a strong vein of idealism. The explanation is not remote; the imagination separates the wheat from the chaff in the realm of ideals, picturing vividly what will yield enduring satisfaction. In persons of average capacity and imagination, idealism is more halting because the perceptions of what is permanently worth while are less definite and carry less firm conviction. Hence in such persons idealism of conduct is less spontaneous and calls for conscious effort to sustain it. It is, indeed, a quality which may be deliberately cultivated if the germ exists in the character.

What I would like particularly to impress on your minds is that without idealism of purpose, without the willingness to make sacrifices of material comfort and much that the world overprizes, the career of the student and practitioner of medicine is almost certain to be pitifully limited and mediocre. He will do well who has the character to run his course in a strong spirit of independence, satisfied during the long years of professional preparation with the slender means that permit the prolongation of some phase of the student life long after graduation from the medical school. There is no surer road to hopeless mediocrity than that which leads the young physician to assume an active practice before he is ripe for it. On the other hand, the student physician who waits patiently, year by year, to strengthen his intellectual grip on the processes of disease, if possible under the guidance of some master of medicine, is laying the unshakable foundations of a telling and distinguished career. He need have no anxiety as to the future either on the score of professional recognition or the ability to earn a sufficient income. For the world needs and must ever seek the serious, well-trained, idealistic physician whose first thought is to render a high grade of service. The superior type of student will not dread the long years of preparation in laboratory and clinic. He will eagerly seek them and will count it the greatest privilege of his life to be able to utilize and develop his powers. The fascinating interest of his problem and the elevation of his ideals will keep him buoyant under circumstances of discouragement. If he be blest with a fair share of imagination and idealism he will never falter in the struggle to make a worthy career, for he will know that he is treading in the footsteps of the great masters of medical science and that in doing so he is helping to assuage human suffering, perhaps also to illuminate some of the dark problems in the baffling mystery of life. And in this consciousness will he find ample compensation for the self-abnegation which such a career must necessarily exact from its votaries.

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Original Articles

WHAT PHYSICIANS CAN DO TO IMPROVE THE PHARMACOPEIA[*]

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I may underrate the difficulty of my task, but it seems to me very simple. Physicians can improve the Pharmacopeia by taking a more direct and critical interest in it. I have had occasion lately in a paper read before the Philadelphia County Medical Society to present some facts concerning the change of control in the Pharmacopeia and to suggest radical changes in the method of revision. That paper has been deemed of sufficient importance by several pharmaceutic journals to be published in full.

It is not necessary to present in any detail the history of the nine issues of the Pharmacopeia. The important data are given in the book itself. The first issue (1820) was under exclusive medical control. No college of pharmacy then existed in this country, and advice was but indirectly received from pharmacists. Notwithstanding the fact that colleges of pharmacy were established before the first revision, no delegates from them or from pharmaceutic societies are recorded until 1850, and even then the revision of that period was issued as being under the "authority of the National Medical Convention," as the revisions of 1830 and 1840 had been. To the convention of 1850 the Philadelphia College of Pharmacy sent three delegates and the New York College two.

In the last revision the substantial control by pharmacists is seen on examining the composition of the Committee on Revision and the Board of Trustees. The Committee on Revision consists of twenty-six members, of which number twelve have the degree of M.D.; but several of these are surely much more closely connected with pharmacy than with clinical medicine. The Board of Trustees consists of seven, of which number two have the degree of M.D., and one of these is a professor in a college of pharmacy. I make no charges, nor do I entertain any thought that pharmacists have acted unfairly in these distributions of control. Physicians relaxed their interest and it was necessary for some one else to take up the work.

My hope is that physicians will see the advisability of asserting their opinions in regard to the ninth decennial revision. The medical profession is entitled to at least equal representation on the Committee on Revision and Board of Trustees by reason of its numerical strength in the nation at large, by reason of its historic relations to the revisions and by reason of the medical significance of the book. It is to be hoped that some system will be devised by which equitable representation in the convention will be secured. For the convention in 1900 twenty persons were elected in Philadelphia, of whom eleven were pharmacists and nine doctors. All the pharmacists were present and six of the doctors. I am at a loss to understand why the Alumni Association of the College of Pharmacy should have been allowed representation on the floor of the convention. The college itself was fully represented and also the State Pharmaceutic Society. An inspection of the roll of the last convention will show some phases of representation that can be best compared to what is known in England as the "rotten borough" system. A convention should have a definite system of representation.

It is, in my opinion, now time to make the United States Pharmacopeia a national work in the full sense of that expression. We live in a very different world from that in which the book had its origin. The little band of doctors that met in Washington on New Year's day, 1820, in the hot youth of the Republic, when George III was king and James Monroe President, would have been shocked to hear that a time would come when Congress would make a law establishing the provisions of the Pharmacopeia as a legal standard. They would have regarded such a drift toward centralization as a blow to republican institutions and in destruction of American liberty. We moderns feel no such alarm, recognizing that all the steps toward a better union are over the ruins of state individualism. Now that penal enactments give the requirements of the Pharmacopeia the force of law, it is but wise and just that the framing of these requirements should be carried out under official sanction. The United States Government should summon the convention and provide for the expenses of the delegates. There is no need for the numerous attendance that has become customary of late years. There is no reason that every college and society of pharmacy and medicine should be authorized to send accredited delegates. The work of the last revision was done by a few men, not more than twenty-six authorized persons in all; and from what I have learned in a very large experience of committees, boards and commissions, I feel inclined to say that if the minutes of the Revision Committee were published, it would be found that a few competent and active spirits did most of the work and determined the main lines of policy. If the American Medical Association and the American Pharmaceutical Association were each authorized to send, say, ten delegates, and the medical departments of the Army, Navy and Marine-Hospital Service each, say, three delegates, a convention could be held fully as representative as any that has ever assembled for such a purpose. The publication should be carried out by the United States Government. A Committee on Revision should be designated which would have power to make necessary changes in the interval between revisions. Revisions should be once in five years. The decennial revision satisfied the conditions of 1820, but progress in pharmacy and medicine is too rapid now for such a long interval. The preparation of the revision should not occupy over one year. The circumstances that attended the publication of the last revision, namely, that it took five years to finish, are wholly inconsistent with the principle on which such a work is published.

During the preparation of the revision, the work should be brought before the public for discussion through publication of the more important suggested changes in the leading medical and pharmaceutic journals. In this manner important criticism will be available. Some errors and inconsistencies would be avoided and no injury would be done to any one. I think that the size of the book could be materially reduced, without interfering with its usefulness in the field for which it is intended. Many of the analytic processes could be included in special bulletins as is now done in food analysis work, and to these the special workers could refer.

A work that determines the conditions on which criminal proceedings are brought should originate and be controlled by official authority, not by private management. The framers of the current revision recognized that the book had become a danger in this respect and placed it in a formal statement that it is a standard for drugs and not for foods. Under the sanction and control of the general government, the book will become in reality the "United States Pharmacopeia."

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[*] Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ABSTRACT OF DISCUSSION

Prof. Joseph P. Remington, Philadelphia: I think every member present is conversant with the views held by the author. There is practically no change in the paper which was presented before the county medical society. It is full of inconsistencies. I do not desire to attack the paper in detail. I will only say that I do not think that a committee formed solely from the American Pharmaceutical Association and the American Medical Association would be nearly so representative of the whole country as would be the convention in the present form. Sooner or later I apprehend that the United States government will have more and more influence in the formation of the Pharmacopeia. Whether that will take place soon or late I do not know. I do not think any of us know. At any rate the U. S. Pharmacopeial Convention is on pretty solid ground and it directs how the next Pharmacopeia shall be revised. Dr. Leffmann is not correct in his dates. He spoke of the Pharmacopeia of 1820. The first College of Pharmacy in the United States was founded in 1820 and he spoke of the pharmacists having no connection with the revision until 1850. In the Pharmacopeia of 1840 is an acknowledgement that the Pharmacopeia of 1840 was the work of the Philadelphia College of Pharmacy. The physicians had abandoned that Pharmacopeia entirely. In the preface of that Pharmacopeia is a statement to that effect. I am very tired of this contention as to who is going to be the greatest in the Kingdom of Heaven. It seems to me puerile in the extreme. I have no desire to sit at the head of the bench. What we want is not a pulling asunder, but a getting together, and we want the best assembly possible for the Ninth Revision Convention, and I am willing to help in organizing the American Chemical Society, which is coming in, the government interests which are coming in and all others entitled to representation, but the greater interest of the American Medical Association is what we want, and I am sure the question of supremacy, whether it will go to the doctor, the chemist or the druggist, can very well be left to the future.

Dr. Henry Beates, Philadelphia: The official adoption of remedies comprises three conditions: One, proving through chemistry how they affect human kind; another, the effect of medicine on the human economy, empirically proved—whether the fact can be demonstrated and explained through chemistry or not; thirdly, by a physiologic or biologic demonstration of the manner of their action. In order to adopt any remedial agent, one or all of these conditions should be the determining reason for either official recognition or rejection, and it appears manifest, if this be true, that on the Committee on Revision, therefore, chemists, physiologists, biologists, and clinicians should be represented; and, because medicines are manufactured, the interests of the manufacturers should be represented. Such a title as "The Capture of the Pharmacopeia by the Medical Profession" engenders antagonism between the interests above mentioned, and lays the foundation for disintegration and serious trouble. To suggest such a revolution in the formation of the committee on Revision, as the paper suggests, is exceedingly dangerous. I believe the department of pharmacology in affiliation with the medical profession, should be strengthened by each individual, so trained himself, as to be able to act with freedom from prejudice and sentiment, and capable of approaching the subject with a broad and open mind, and acting intelligently and honestly. A man should have the courage of conviction, and be able to contend for that which he believes to be right. He should also be sufficiently brave to acknowledge error, should his attitude prove to be mistaken. I hope that the action governing the next meeting of the Committee on Revision of the United States Pharmacopeia will be characterized on the part of every one by the spirit manifested in the words of the martyred president: "With malice toward none, with charity for all, with firmness in the right, as God gives us to see the right, let us continue in the cause we are in." It is only by such action that genuine progress is assured.

Dr. M. G. Motter, Washington, D. C.: We heard in a paper that some ten or twenty years ago there were nine physicians appointed as delegates to a pharmacopeial convention from Philadelphia. Among them was a delegate appointed to the 1890 Pharmacopeial convention, appointed again a delegate to the Pharmacopeial Revision Convention in 1900. He was not there on either occasion, but after at least twenty years he has waked up to the fact that he ought to do something for the Pharmacopeia.

Dr. Reid Hunt, Washington, D. C.: I think one thing is coming out in these discussions, viz., how far apart the physicians are among themselves as to what they want. We have some physicians who want to have ten thousand things in the Pharmacopeia and others who want about one hundred. We have some physicians who want to lean very largely on the chemical and pharmaceutical knowledge of the pharmacists and others who rather resent any suggestions from that quarter, and I am afraid the physicians have not come to see and know what they want any more now than in the last few decades.

Prof. Joseph P. Remington, Philadelphia: In connection with the results of the work of this section we have not got hold of the men we want. We have discussed the United States Pharmacopeia, the National Formulary and all these interests, and all the papers of this symposium have been most interesting, but what have we done? Discussed it among ourselves, among the very men who do not need the information, but the great body of the American Medical Association, the rank and file, have not been here. I wish there were some way, Mr. Chairman, by which we could have had a general meeting. Next year the Decennial Convention for the Revision of the Pharmacopeia meets. We have heard about the American Medical Association taking such an interest in this work, but have there been any considerable number of the rank and file of the physicians here? I am not going to be in the position of the clergyman who gave out on a certain day that there was to be the largest outpouring of his congregation there had ever been. Well, on that day there happened to be a terrible snowstorm, and instead of having the church filled he had about ten faithful members. He was so disappointed that he got up in the pulpit and began scolding and berating the congregation, when one of the members whispered to him, "They are not the *people you want to hammer, you want to go for the people who* didn't come." So the clergyman ceased berating and said, "But just wait until I see the rest of the congregation who aren't here and see what I tell them." Time is pressing. I confess I have a feeling of disappointment. If there could only be a general discussion by the whole association in view of the fact that next year is to be the year for the convention, then we could have had some opinions valuable in educating and getting hold of the rank and file. We have to depend on the meetings between the present and the convention to see that the question of the use of the Pharmacopeia and the National Formulary is brought before the medical profession.

Dr. Reid Hunt, Washington, D. C.: In reply to the last question, I think there are prospects of different sections, through their committees, doing some work in the next few months. The action of the Committee of the Section on Ophthalmology enables each member of that section to express an opinion on what drugs he considers to be of importance; the same action will be taken by a number of other sections, and this will certainly give valuable material as to what representative physicians consider to be of value.

Mercuric Chlorid as an Insecticide.—Experiments conducted by the U. S. Public Health and Marine-Hospital Service show that bichlorid of mercury sublimed in a sealed room is effective in killing mosquitoes and flies, and to a less extent bedbugs and other insects. Further experiments are necessary, however, to prove its real value. The advantages of this agent are: facility of obtaining it, small quantity necessary (60 grams being sufficient for a room containing a capacity of 2,000 cubic feet), and simplicity of its employment.

SOME OF THE PREPARATIONS OF THE UNITED STATES PHARMACOPEIA FROM THE PRACTITIONER'S STANDPOINT *

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Preliminary to the main subject of this paper I wish to make a few general remarks regarding the attitude of the general practitioner to the Pharmacopeia.

It is an undoubted fact that the ordinary physician has never seen the inside of a copy of the Pharmacopeia. It is likewise certain that pharmacopeial preparations are used in prescriptions much less frequently than they would be if the practicing physician had a good working knowledge of the preparations recommended by the book. Instead of a knowledge of those drugs and their efficacy or inefficacy, he has an acquaintance with the ethical or purely proprietary preparations of one or another manufacturing firm. He has probably not been taught while he was getting his medical training that drugs can be found in the Pharmacopeia, and mixtures of these can be found in its companion, the National Formulary, which will meet any emergency, and with which any disease can be treated. If he has had such training it has been allowed to atrophy because of the persistence of some manufacturing firm's detail man and because of the ease with which this firm's special constipation pill or cough mixture may be ordered.

Such facts are, at least, discouraging when one realizes that medication, to be efficient, must be simple and directed to the special case in hand. That we must treat the conditions found and not the name of the disease. Another fact has been impressed on me during this study, namely, that even we who boast of using very few drugs, as a matter of fact at one time or another run almost the entire gamut of drugs made lawful by the Pharmacopeia. I have particularly studied these points:

1. Some of the drugs recommended by the Pharmacopeia are obsolete.
2. Some of the mixtures recommended should be relegated to the National Formulary.
3. Some of the preparations should be omitted from both the Pharmacopeia and from the National Formulary.

THE OBSOLETE OR USELESS DRUGS

The Pharmacopeia should be our guide. As I have stated, it unquestionably contains practically everything that is known to be surely useful at the time of publication of the book. It therefore should have expunged from its pages drugs or their preparations which have become obsolete. In a fairly careful review I have selected thirty-one of the crude drugs which could be disposed of without crippling our armamentarium. I am aware that the number seems large. Some seventy titles can be dispensed with if the preparations of the drugs can be counted. I suppose that many men will not agree with my views of the usefulness of these articles, but nevertheless I believe I am right and that they should be expunged.

1. Acetum Opii is certainly little used and not as valuable as the deodorized tincture of opium.
2. Acetum Scillæ is so rarely used that it but cumbers space.
3. Acidum Nitrohydrochloricum Dilutum is notoriously useless when kept for any length of time.
4. Berberis is notably valueless when compared with a preparation of Nux Vomica. It but helps to nullify any attempt at accurate medication.
5. Calamus is no tonic, its valuelessness being proved by its slight use.
6. Calendula is spoken of in the past tense by therapeutists.
7. Calumba has only its bitter taste to recommend it.
8. Chimaphila would never be used to-day in nephritis.
9. Chirata is said to be used in Hindostan. It does not maintain its reputation here.
10. Cinchonidinæ Sulphas has no value as compared with the valuable quinin.
11. Cusso may be valuable as a tenicide but it is notoriously impure and hence should be expunged.
12. Cypripedium has no place in modern therapeutics.
13. Euonymus is certainly not proved to be a hepatic stimulant.
14. Geranium is a beautiful flower, but as a medicine a nonentity.
15. Guarana is certainly much less efficacious than the alkaloid caffein.
16. Infusum Pruni Virginianæ is so seldom used save by the laity that it seems useless to recommend it.
17. Krameria has such a doubtful value as compared with the newer astringents that it is seldom used.
18. Lactucarium is so inert as a soporific that it is now entirely displaced. Wood has tried it in large doses with no effect.
19. Lappa (burdock) has been—indeed, is now—recommended in secondary syphilis and "scrofula." Is not that little less than criminal?
20. Leptandra is another makeshift as a biliary stimulant.
21. Lupulin should certainly be carefully investigated as to comparative value before it is replaced in the Pharmacopeia, though the odor of a hop poultice is soothing.
22. Mastiche is said to be never used except in the compound pill of aloes and mastic. Surely it can be dispensed with.
23. Matico also has possible values, but they are only problematical.
24. Matricaria (chamomile) as a tea is a popular remedy with the masses. It has no proper place in the Pharmacopeia.
25. Mezereum is chiefly valuable (?) as an irritant poison.
26. Pareira is one of the drugs which is impressed on my brain from student days. I doubt if it is ever used.
27. Phytolacca is gathered by the poor in lieu of asparagus. Is it ever used in medicine?
28. Sabal (saw-palmetto) has been largely advertised by certain firms. Its real use is problematic.
29. Sanguinaria is a relic of the past.
30. Stillingia is never used in syphilis with effect.
31. Xantholin is said to be "not well defined" as to its uses.

The uses of these thirty-one substances are certainly unsettled. It seems unnecessary to burden our literature with these doubtful drugs when we have abundance of others of certain value where these can be recommended.

MIXTURES WHICH SHOULD BE RELEGATED TO THE NATIONAL FORMULARY

There are a number of mixtures recommended and made lawful by the Pharmacopeia. This is not the place to discuss the propriety of using ready-made formulas. Personally I believe it is a pernicious habit of which we are all more or less guilty. However this may be, there is the National Formulary which contains numerous recipes more or less useful, and these mixtures should find place there. Their presence in the Pharmacopeia appears to me at least to show a lack of appreciation of the great value of simple prescribing on the part of the learned and earnest gentlemen who make up the Committee on Revision.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

The Pharmacopeia is the book which should tell us what drugs are useful and how they may be manufactured. It is not its place to dictate formulas for innumerable mixtures, for a mixture is useless except when prescribed for certain conditions which cannot be foretold. The following mixtures, therefore, seem out of place in the Pharmacopeia:

Cataplasma Kaolini, Confectio Sennæ, Elixir Ferri, Quininæ et Strychninæ Phosphatum, Emulsum Olei Morrhuæ Cum, Hypophosphitibus, Extractum Colocynthidis Compositum, Fluid Extractum Rhamni Purshianæ Aromaticum, Glyceritum Ferri, Quininæ et Strychninæ Phosphatum, Infusum Sennæ Compositum, Liquor Antisepticus, Mistura Rhei et Sodæ, Pilulæ Aloes et Ferri, Pilulæ Catharticæ Vegetabiles, Pilulæ Laxative Compositæ, Pilulæ Podophylli, Belladonnæ et Capsici, Pulvis Acetanilidi Compositus, Syrupus Hypophosphitum Compositus.

These mixtures, with perhaps a few more, make up the class of preparations to which I refer.

PREPARATIONS WHICH SHOULD BE ENTIRELY DROPPED

Among these mixtures is the third class which it appears to me would be wise to expunge from both our publications.

I refer especially to Cataplasma Kaolini and Pulvis Acetanilidi Compositus.

These two mixtures and perhaps others are such palpable copies of widely advertised nostrums which are either valueless or dangerous that it would appear unwise to recommend them.

INFORMATION WHICH SHOULD BE CONTAINED IN THE PHARMACOPEIA

I have stated above that two facts, lack of instruction by the teaching authorities in regard to the undoubted sufficiency of the pharmacopeial preparations in the treatment of disease, and the persistence of the detail men, are potent reasons for the failure of physicians to use pharmacopeial preparations. But, it seems to me, there is still another reason. The Pharmacopeia contains the official name of the drug with the method of its preparation, its dose, and nothing besides this.

The method of preparation of a drug and its preparations is of little value to the practicing physician. He must know, however, the dose, the action and the uses of a drug. He is now compelled to turn to the various dispensatories or the innumerable works on therapeutics for this essential information. Dispensatories and many books on therapeutics very properly contain information on many articles which are *not* official.

Now, is it not in the province of the Committee on Revision of the Pharmacopeia to add to the information already given about official drugs a short and concise description of the action and uses of the drugs described? If this is not practicable, cannot this information be given in a second volume, to be used by physicians while the present information could be published in a volume for the use of pharmacists?

It would appear that so long as the Pharmacopeia has its present form just so long it will not be in common use by the practicing physician and he will be forced to depend on other sources for his information. Drug firms are ever ready to supply him with information.

It is impossible, moreover, however desirable, for the every-day doctor to use such names as "hexamethylenamin," "sulphomethanum" and "acetphenetidin" for "urotropin," "sulphonal" and "phenacetin." The Committee must find some synonym for these unpronounceable names. Better adopt the patented name than use the long chemical one

CONCLUSIONS

Certain drugs should be omitted from the next revision of the Pharmacopeia, because they are obsolete.

The mixtures should be relegated to the National Formulary or be dropped.

More information should be given in the Pharmacopeia about drugs.

Impossible names should have synonyms supplied.

421 Lyceum Avenue, Roxborough.

REPORT OF THE COMMITTEE ON THE UNITED STATES PHARMACOPEIA *

To the Board of Trustees of the American Medical Association:—Your Committee on the United States Pharmacopeia begs to report as follows:

The committee, soon after its appointment, sent a circular letter (copy of which is enclosed) to the medical organizations entitled to representation in the United States Pharmacopeial Convention, urging them to consider the appointment of delegates to the convention of 1910 and suggesting that they might find it advisable to appoint special committees on the Pharmacopeia. The letter was also sent to the officers of the Sections of the American Medical Association with the suggestion that they appoint committees to consider the Pharmacopeia from the standpoint of their specialties. This letter met with a cordial reception. Many of the medical organizations have appointed delegates to the convention as well as special committees on the Pharmacopeia. Several sections of the association have also appointed committees; some of these have done considerable work.

The responses to the letter indicate that there is a widespread interest in the Pharmacopeia and a willingness to work. It is evident, however, that some of the committees do not see clearly how they can approach certain of the problems of pharmacopeial revision.

As an illustration of the practical work a section committee can do, the action of the committee of the Section on Ophthalmology may be cited. Recognizing that the problem of revision in which the physician is most immediately interested is that of the scope of the Pharmacopeia, this committee, in order to determine which unofficial drugs are considered by the members of this Section to be most important and most worthy of recommendation for inclusion in the Pharmacopeia, selected from New and Nonofficial Remedies a list of fourteen drugs of special interest to ophthalmologists. This list was sent to the members of the Section (935 in number) with the request that each indicate the six which he considered of most value.

Other sections are preparing to take similar steps, and it is hoped that various medical organizations will do likewise, for your committee knows of no way in which the medical profession can better make its wishes known to the Committee of Revision of the Pharmacopeia. It is especially desirable that this work be done in the near future, for the data so collected may be valuable in connection with the formulation of the general policies to be pursued in the next revision of the Pharmacopeia. The collection and tabulation of such data will involve much labor and some expense, and we believe the American Medical Association should undertake it and not leave it to an already overburdened committee of revision. It is also believed that it would be advantageous for much of the clerical work to be done at the association's headquarters in Chicago, where permanent records could be kept. Since some of the work of the Council on Pharmacy and Chemistry is closely connected with this subject, we recommend that the Secretary of the Council be given authority to cooperate in this matter and that he be given the necessary assistance; the secretary could also serve as a medium of communication between the different committees.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

Those who realize the possibilities of the Pharmacopeia and the need of greater familiarity with it, will agree that there are few objects for which the association could more profitably make a liberal appropriation.

The chairman of the Committee on Anesthesia of the Section on Surgery was written to with the object of ascertaining if the work of that committee could not be of assistance in suggesting and formulating more perfect standards for the important anesthetics of the Pharmacopeia. It was suggested that it would be highly desirable if such subjects as the following could be considered: the physiologic effects of alcohol-free and alcohol-containing ether; the effect of water and of alcohol on the volatility of ether; the effect of ethyl chlorid in chloroform; the admission of nitrous oxid into the Pharmacopeia; the advisability of recommending the admission of certain anesthetic mixtures, etc. The chairman of the Commission on Anesthesia replied, in part, as follows: ". . . We can hardly see our way, for this year at least, to take up the extensive chemical investigations which you suggest. . . . We had hoped that we might turn to your committee for chemical reports on the quality, composition, and value of the various anesthetics."

While most of the pharmaceutical and chemical problems connected with the Pharmacopeia should be left to the representatives of the pharmaceutical profession, there are a few such problems which should be approached from the standpoint of the physician and should be kept in close correlation with clinical and experimental studies.

The members of this committee believe that the chemical laboratory of the association at Chicago should be available for such investigations and recommend that additional assistance and facilities be given the chemist in charge for the more active prosecution of such studies.

It is evident that New and Nonofficial Remedies is being considered as a Pro-Pharmacopeia from which the best will be transferred to the Pharmacopeia. We believe that this work should be so regarded and that the Council should endeavor to emphasize this side of the work, which is largely independent of proprietary medicines.

It is considered especially important that careful consideration be given to the names under which new drugs are admitted to New and Nonofficial Remedies, for it is very desirable that these be brought to the attention of physicians under unobjectionable names suitable for inclusion not only in the United States Pharmacopeia but in foreign pharmacopeias, as the difficulty of effecting a reform in the nomenclature of drugs which have once come into general use has been well illustrated in the case of our own as well as of foreign pharmacopeias. Hence we urge the Council to use its influence with manufacturers to follow a more scientific system of nomenclature and through its corresponding members (the number of which should be increased) endeavor to secure an international agreement on this important subject.

Respectfully submitted,
S. SOLIS COHEN,
GEORGE DOCK,
R. A. HATCHER,
E. E. HYDE,
W. S. THAYER,
REID HUNT, Chairman.

NOTE. (January, 1910.) Since the above report was submitted, committees of three sections of the *Association*, viz., those on Practice of Medicine, Ophthalmology, and Stomatology, have submitted very valuable reports embodying their views as to the revision of the U. S. P. and including drugs which they consider should be admitted to or omitted from it. These reports were published in THE JOURNAL, Sept. 4, 1909, pp. 791-796 (cf. also editorial, October 30, p. 1491, and a letter, p. 1500).

Other sections have appointed committees as follows:

Obstetrics and Diseases of Women.—Drs. F. J. Taussig (chairman), H. T. Byford and G. L. Hunner.

Laryngology and Otology.—Drs. D. Bryson Delavan (chairman), D. Braden Kyle and Algerman Coolidge.

Dermatology.—Drs. Wm. Allen Pusey (chairman), M. B. Hartzell and G. T. Jackson.

It is hoped that these committees will submit reports before the meeting of the Pharmacopeial Convention in May and that the other sections will appoint similar committees.

Dr. J. H. Blackburn, director of the course of postgraduate study for county societies, has recommended that each society arrange for a meeting for the discussion of the revision of the Pharmacopeia.

Prof. J. P. Remington, chairman of the present Committee on Revision, recently wrote to the Secretary of the American Medical Association requesting that this Association present to the next Pharmacopeial Convention a "report on the articles and preparations which, in their opinion, should find a place in the ninth revision of the United States Pharmacopeia." Among the reasons given for making this request is the following: "When I state to you that in 1901 more than one year's time was consumed in settling the important questions of admissions and deletions you can see how much valuable time might be saved by having a report from the American Medical Association." Dr. Simmons replied, stating that as the American Medical Association does not meet again until after the meeting of the Pharmacopeial Convention, he presumed that Professor Remington's letter belonged to the Committee on Pharmacopeia and that he had sent it to the latter. The committee will endeavor, with the help of the reports of the section committees and others, to prepare such a report for the Pharmacopeial Convention.

THE U. S. PHARMACOPEIA AND THE NATIONAL FORMULARY

DO THEY CONTAIN A SUFFICIENT ARMAMENTARIUM FOR THE MEDICINAL TREATMENT OF DISEASES? *

M. CLAYTON THRUSH, PH.M., M.D.
PHILADELPHIA

THE NEED OF A MORE INTIMATE KNOWLEDGE OF THE U. S. PHARMACOPEIA AND THE NATIONAL FORMULARY AMONG PHYSICIANS

The propaganda in favor of the U. S. Pharmacopeia and National Formulary which was begun but a few years ago has been reaching a higher state of development year after year, and if its future progress continues in corresponding proportions the time is not far distant when we will be able largely to overthrow by effective legislation, and in other ways, unethical proprietaries, secret nostrums and charlatanism.

This propaganda has been carried on vigorously by certain members of our own and the pharmaceutical professions and, of course, more enthusiastically in certain sections of the country than in others.

In order that this propaganda might be carried out effectively, several divisions of the subject became necessary, and each of these contributed its share of the labor and deserves corresponding commendation.

One of these was the formation of the Council on Pharmacy and Chemistry, which has passed on all the various pharmaceutic products on the market—in fact, acted as a clearing-house for the benefit of the medical profession. There is no question but that this Council has done an inestimable amount of good, and that its reports have been read with interest by all conscientious physicians. The influence of the Council can be appreciated when we note the large amount of money expended by certain firms to bring their products up to a passing standard. The medical profession can thank the Council for the formulas of a number of well-known proprietaries which hitherto were kept secret. Its work should be continued; and some arrangement should be effected whereby the knowledge gained by the Council in its investigations should be utilized by the next Pharmacopeial Convention, which meets one year hence, and this Council should act as an advisory committee to the Pharmacopeial Revision Committee, and should carry out certain special investigations as they may arise in revising the next Pharmacopeia.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

The time that elapses from the meeting of the convention until the new Pharmacopeia appears should be materially lessened, as five years is entirely too long a time for this purpose.

THE RELATIONS BETWEEN THE MEDICAL AND PHARMACEUTIC PROFESSIONS

Another factor is the relations that should and do exist between the medical and pharmaceutic professions. The more cordial the relations between the two professions, the more quickly will the proprietary medicine evil be eradicated. The interests of scientific pharmacy can be promoted by joint meetings between the branches of the American Pharmaceutical Association and local medical societies, a plan efficiently carried out at present in cities like New York, Philadelphia and Chicago. Such joint meetings should be encouraged, as I know of no better way to acquaint the physicians who are now in active practice with the knowledge of these preparations than to discuss them in common with their neighboring pharmacists. Another valuable plan is the one that has been in vogue in Philadelphia for the past two years, according to which the Philadelphia Association of Retail Druggists mails at various intervals to the physicians of the city small booklets of uniform size, suitable for preservation and binding, containing the names of official preparations arranged in systematic classes. The following was inserted in the cover-page of the first issue and shows the object for which they were sent out:

> The foregoing formulas are confidently recommended to the medical profession in the belief that these preparations will meet the needs of the physician, without resort to the use of proprietary medicines.

The following subjects show the character of the booklets, as each contains the most valuable preparations as found in the U. S. Pharmacopeia and National Formulary under the respective classes:

Non-toxic antiseptics, animal digestants and their preparations, including those used as vehicles and adjuvants, seasonable preparations for ethical prescribing, popular new preparations of the U. S. Pharmacopeia and National Formulary, intestinal astringents and antiseptics, ethical tonics and alteratives, important vehicles, adjuvants and flavoring agents, the important stomachics, some important U. S. P. and N. F. preparations, diuretics and diaphoretics, the expectorants.

This is the complete list up to the present time. Another important and valuable book in this connection is the "Physician's Manual of the Pharmacopeia and National Formulary," which is an epitome of all the articles contained in the latest editions of these two works, systematically and conveniently classified. This book should be in the hands of every practicing physician in the United States. It is published by the American Medical Association and sells for 50 cents a copy. Other valuable books in this connection which are published by the American Medical Association are: "The Pharmacopeia and the Physician," "The Great American Fraud," "The Propaganda for Reform in Proprietary Medicines" and "New and Nonofficial Remedies."

PHYSICIANS OFTEN IGNORANT OF THE PHARMACOPEIA AND NATIONAL FORMULARY PREPARATIONS

Many physicians are not acquainted with the contents, objects and meaning of the U. S. Pharmacopeia and National Formulary; hence they are too often controlled by motives of convenience in their selection of remedies. Many physicians have the idea that the best drugs and preparations are to be found outside the Pharmacopeia, and their *prescriptions prove this fact.*

The medical schools hold the key to the situation, as far as the future practitioners are concerned, as all students of medicine should be required to possess an intimate knowledge of the U. S. Pharmacopeia and National Formulary as an essential requirement for graduation.

A more thorough course of pharmacologic instruction should be given in our medical schools. This subject was emphasized in a paper[1] which I read before this Section two years ago, in which the small amount of time allotted to this subject in all the various medical schools was demonstrated by a careful examination of their respective catalogues.

THE PHARMACOPEIA AS A MEDICAL AND LEGAL STANDARD

The usefulness of the Pharmacopeia and National Formulary to the medical profession depends on the degree in which they fairly reflect the best tendency of modern prescribing. Their defects in this respect are referable to faults in the organization of the methods of revision—to secrecy, to infrequent revision, to want of responsibility and to a non-representative method of selecting substances for admission. Their cure depends largely on the active interest of the medical profession.

The U. S. Pharmacopeia has for a number of years been recognized as the representative of the best pharmacopeias in the world; its standards have been worked out most carefully by men of the highest character; its adoption as a standard by the federal law and the many state laws now in existence is but natural sequence. The Food and Drugs Act, which has proved of great value to the whole country, has furnished all that was necessary in order that the Pharmacopeia might be recognized as a legal standard. Before the Pharmacopeia was recognized as a legal standard many manufacturers were indifferent, believing that the standards employed for the purity of the various drugs and chemicals used in their products were variable, and each competitor adopted standards which were convenient to himself. Therefore they often employed drugs of inferior value, and the medical profession had no protection against them, as there was no legal standard on which to base a case for action against them. Soon after the law was passed, however, it was believed by almost all the various interests involved that many of the standards were too rigid.

The passage of the Food and Drugs Act assisted greatly in securing a definite standard for both drugs and foodstuffs, and the persistent endeavor of the proprietary medicine interests, on the one hand, and the manufacturers of foodstuffs, on the other, to obtain permission for the use of certain adulterants, preservatives or admixtures in their products furnishes the best evidence of the importance and necessity of such a law.

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[1] Thrush, M. C.: A Plea for a More Thorough Course in Practical Pharmacy and Prescription Dispensing in Our Medical Schools, The Journal A. M. A., Jan. 25, 1908, l, 254.

THE SUFFICIENCY OF THE OFFICIAL DRUGS AND PREPARATIONS IN THE MEDICINAL TREATMENT OF DISEASE

And now, returning to the original question of the title of this paper, every conscientious and scientific physician cannot help but answer that we do possess in the drugs and preparations that are recognized by the U. S. Pharmacopeia and National Formulary a sufficient armamentarium for the medicinal treatment of disease. When we consider that the Pharmacopeia contains 958 drugs or preparations and the National Formulary 437, making a total of 1,395 drugs or combinations of drugs, surely this should be sufficient for any one who desires to treat disease. If a physician cannot relieve a given case with one of these, he could not do so if he had a million to select from. There are few physicians who make use of even one-half of the above list in their routine practice, and the majority do not use one-fourth of this number, a fact to which I know every one will agree. Then why should we desire any larger assortment or why should we order proprietary or nostrum preparations in preference? While scientifically treating disease, the amelioration of objectionable symptoms must not be forgotten; i. e., the patient must not be forgotten. Drugs or preparations should be ordered, the exact composition and physiologic action of which are known. Nature must not be left unassisted in her endeavor to overcome disease, and we should be broad-minded enough to employ any means or agents that may be indicated in a given case, without consideration of any "pathy" or school; in other words, we should not be allopaths, therapeutic nihilopaths or any other "paths," but practitioners of scientific medicine.

The Pharmacopeia and National Formulary should be pruned of the useless drugs and prehistoric mixtures which they contain, and they should not be stocked at each revision with rather exact "imitation" formulas of all the various proprietaries which have become popular since the previous revision. This is a rather poor way to combat proprietary medicine evils and stock formula prescribing, is it not?

There should be frequent analyses made by the various state boards of health of the drugs found in the open market to see that they are up to the pharmacopeial standard.

The U. S. Pharmacopeia and National Formulary furnish all of the tonics, digestants, emulsions, antipyretics, hypnotics, nerve sedatives, cough mixtures and external applications that are needed in the medicinal treatment of disease.

HOW MUCH IS THE MEDICAL PROFESSION RESPONSIBLE FOR THE PREVAILING USE OF NOSTRUMS?

Much deception, prompted by commercialism, is practiced on an unsuspecting profession in introducing new remedies; and various pet schemes, including the giving of stock, commissions, souvenirs, building lots, blotters, literature, etc., are resorted to in order to induce physicians to use such remedies. Often lack of training and discrimination causes physicians to prescribe such remedies, and on solicitation to recommend them to others. Accompanying literature to catch the eye of the laity converts these prescribed semisecret pharmaceuticals into remedies which may be prescribed by the patient. Druggists often aid the laity in the habit of prescribing for themselves; medical journals which admit unethical semisecret remedies into their advertising pages likewise foster this practice. Often physicians thoughtlessly or through laziness or ignorance prescribe secret remedies, thus increasing and maintaining this evil. The remedy lies in educating the profession in the manner that has been suggested before in this article. Hence I feel confident that I voice the sentiments of every conscientious scientific physician when I say that we possess in the drugs and preparations that are recognized by the U. S. Pharmacopeia and National Formulary a sufficient armamentarium for the medicinal treatment of disease, and for the following reasons:

1. All the various proprietaries and secret nostrums as found on the market are merely mixtures or compounds of drugs and preparations as found in the U. S. Pharmacopeia and National Formulary, and they could be easily compounded by any educated pharmacist.

2. These proprietary preparations are manufactured and sold, not for the benefit of either suffering humanity or the doctor, but for the money that can be made out of them for the manufacturer by fleecing the people who are compelled to pay more for this medicine when made under their special proprietary name than it would cost if dispensed by a reputable pharmacist, and with a legitimate profit.

3. Physicians can prescribe these semisecret proprietaries or nostrums only because of inability to prescribe or formulate a proper prescription through lack of knowledge or for pecuniary returns through financial interest in the company that manufactures the medicine.

4. It is a rare exception when it is necessary to resort to a drug or preparation that is not found in the U. S. Pharmacopeia or National Formulary, as all the best drugs are found in these two books in some form or other. It is ethical and proper to use a certain preparation of such drugs as are official, even if the preparation itself is not official.

5. The valuable drugs that are not official, with but very few exceptions, are found in the list of New and Nonofficial Remedies as passed on by the Council on Pharmacy and Chemistry.

6. It is perfectly proper and legitimate to specify a certain firm's make of an official drug or preparation if the physician so desires, as we may have more confidence in the products of certain firms. There is no question that some manufacturers send out much more reliable and active preparations than others. We should use drugs and preparations from reliable sources only, and the price should be a matter of secondary consideration.

Hence, in conclusion, it is rarely necessary for a physician to prescribe a drug or preparation that is not recognized in some form or other either in the U. S. Pharmacopeia or National Formulary; and in the few instances in which such a drug or preparation should be the one prescribed it would be more rarely when it would not be found in the list of New and Nonofficial Remedies as approved by the Council, provided it possesses any medicinal virtues to warrant its use. For all practical purposes, therefore, we can safely limit our prescribing to drugs and preparations recognized by the U. S. Pharmacopeia, National Formulary or Council on Pharmacy and Chemistry of the American Medical Association.

3705 Spring Garden Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FUSSELL AND THRUSH AND ON THE REPORT OF THE COMMITTEE ON THE U. S. PHARMACOPEIA

Prof. Joseph P. Remington, Philadelphia, Pa.: If we could have had such an active interest in the Pharmacopeia ten years ago, or twenty years ago, on the part of the medical profession as that shown in this meeting, I am sure that a great many of the criticisms which have been made on the Pharmacopeia would not have been necessary and therefore I am confident that the Committee on Revision of the United States Pharmacopeia will welcome this active interest on the part of the medical profession. Now the points which were made by Dr. Fussell have been made a number of times before. The one which seems to cause the greatest criticism among the medical profession is that of the nomenclature. Our versatile secretary touched off the question of nomenclature very well this morning, I think, as it affects the medical profession, and I can only repeat that I think the medical profession find a great deal more difficulty in the chemical names than they do in their own. So I don't think they are quite consistent in hammering the Pharmacopeia for its chemical nomenclature. The physicians do not use the nomenclature in their prescriptions. In prescriptions the names of preparations are always abbreviated; even the simple word "tincture" is always "tinct." or "tr.," the entire word "pilula" is never given in prescriptions. I see no reason why physicians cannot abbreviate these long chemical names with equal facility. They particularly mentioned hexamethylen tetramin. There is no reason why the physicians should not abbreviate this word, and write "Hex"; every druggist would understand this. I believe the only exception is in Berks and Lehigh counties, Pennsylvania, where they use the word "hex" in another sense. I think we can all agree that our U. S. P. nomenclature is really not a very serious question. The question of enlarging the scope of the Pharmacopeia by the addition of medical properties comes up at every revision. Certainly there can be no objection if this information can be compressed into sufficient space so as not to make the book too large. If anyone familiar with the subject were to study carefully the pharmacopeias of the world I think that it would be found that nearly all the large pharmacopeias and all the important pharmacopeias of the great countries of the world are books of standards. The U. S. Pharmacopeia is a book of legal standards, especially since it has been adopted by the Food and Drugs Act. It is not intended to express the individual opinions of certain authors as to doses and choice of certain medicines. If it did go into this work to any extent a great outcry would come from all over the country, and there would be far more objection than in keeping it as it is now, a book of standards. I do not suppose that many of us realize the great work that Professor Hallberg is doing as chairman of the Committee on Statistics. It is no small job to compile the statistics for a million prescriptions all over the United States, or even 100,000 or 125,000 and in the short résumé which he gave this morning of the work that has been done I feel very much like telling Professor Hallberg to go ahead and give us by next May, from the large number of prescriptions, an idea of what the country is using, by what the physicians are using. I think that this will be of the utmost value to the next Committee on Revision.

Dr. M. G. Motter, Washington, D. C.: There is a report of a committee before this Section and some specific action must be taken on it. In view of the fact that the report of the Committee on Pharmacopeia embodies certain resolutions and that they involve a possible expenditure of funds of the American Medical Association, I suggest that these recommendations be forwarded in due course to the Board of Trustees. [Carried.] I am perfectly willing to admit that the medical profession is inconsistent in regard to nomenclature, but the Pharmacopeias are not altogether consistent in this particular. A few weeks ago, while looking through a volume of "The Chemist and Druggist," of London, I came across an article on pharmacopeial nomenclature in which the author, Rudolf, cites the names of several of the quinin salts masquerading in different pharmacopeias and trade journals. He gives the title Quininæ hydrochloridum as being in the British Pharmacopeia published in 1898; chlorhydras quinicus in the Codex Medicamentarius or French pharmacopeia for 1884. Then he gives the title from four trade lists: Quininæ hydrochloras (Howard), Chininum hydrochloricum (Boehringer), Quiniæ hydrochlorid (Whiffen), and Burgoyne caps the climax with Quininæ hydrochlor. It struck me as this question would probably come up here, it might be interesting to run over the pharmacopeial names, and I have arranged them as follows:

U. S. Pharmacopeia, ed. 8 (1890): Quininæ hydrochloras.
German Pharmacopeia, ed. 4 (1900): Chininum hydrochloricum.
Spanish Pharmacopeia, ed. 7 (1905): Chlorurum quinicum.
U. S. Pharmacopeia, ed. 8 (1905): Quininæ hydrochloridum.
Dutch Pharmacopeia, ed. 4 (1905): Hydrochloras Chinini.
Belgium Pharmacopeia, ed. 3 (1906): Chininum Hydrochloricum, Chlorhydras quininæ.
Austrian Pharmacopeia, ed. 8 (1906): Chininum hydrochloricum.
Japanese Pharmacopeia, ed. 3 (1906). Chininum hydrochloricum.
Swiss Pharmacopeia (1907): Chininum hydrochloricum.
French Codex (1908): Chininum monochlorhydricum.
Swedish Pharmacopeia (1908): Chloretum chininicum.

Six out of thirteen pharmacopeias give it Chininum hydrochloricum, while the U. S. P. changed from Quininæ hydrochloras, in 1890, to Quininæ hydrochloridum, in 1905.

Dr. H. C. Wood, Jr., Philadelphia: When I was a resident in the University Hospital I remember we had a case of chronic sulphonal poisoning brought in. My chief, who has now passed to the better world, a man whose name is familiar to you all, a man of great intellectual powers, said to me—like most of these patients with sulphonal poisoning, the woman was suffering from insomnia—"I think for her insomnia we will give a little trional." I said, "Don't you think it is rather contraindicated on account of the similarity of the chemical constitution?" He didn't know anything about the mere substitution of the ethyl for the methyl radical. The trional was given. Now that woman died. Whether it was the continuation of the poisonous sulphone through the ignorance of the physician, or whether she would have died because she was already too full of poison, I cannot say, but at any rate he continued pouring into the woman through his ignorance that poison which killed her. My contention is that those names which approximate chemical accuracy suggest to the physician pharmacologic relations. There is another instance in the great popularity of the proprietary veronal. Most physicians associate it pharmacologically with sulphonal because the name sounds so similar, whereas as a matter of fact we have the ethyl carbonate closely related chemically and equally efficacious for about one-fourth the price.

I think that the practice of specifying drugs of certain firms is not only unnecessary but undesirable. If tincture of belladonna is sold as tincture of belladonna it must contain 1/30 per cent. of alkaloid. If it contains more than the Pharmacopeia percentage it is poisonous; if it contains less the man who sells it is liable to prosecution under the national and state laws. All tinctures of belladonna which are sold in the United States contain the same amount of active ingredient, and there can be no reason for preferring one make to another.

Dr. Fussell used a term which is very common in these discussions; he spoke of the Pharmacopeia "recommending" certain drugs, as the compound acetanilid powder. As a matter of fact, the Pharmacopeia recommends nothing. The Pharmacopeia has been made a fetish and we have been taught that we should prescribe only the things taught in the Pharmacopeia, and if the Pharmacopeia names a drug that is a good reason why we should prescribe it. This is an absolutely erroneous conception of the book. The Pharmacopeia is simply a standard whereby if the physician wishes to use a drug he can know just what his patient is getting. I maintain that if the phyician wishes to use a drug, whether the rest of the profession regard it as inert or not, he ought to be at least assured that he is getting what he thought he ordered. I believe that every drug used in medicine, whether of value or not, should be in the Pharmacopeia. Of course, this would make a book so big that we would have to build a special library to hold it. At one of the recent meetings of the Philadelphia County Medical Society Dr. Solis-Cohen suggested that an edition of the Pharmacopeia, once published, should always be a standard until it had been revoked; that when the ninth edition of the United States Pharmacopeia is published, the preface should state: "All substances in the eighth pharmacopeia whose standard is not changed in the ninth shall be considered of the strength and purity which is laid down in the last edition of the Pharmacopeia."

J. W. England, Philadelphia: I think it would be entirely practicable for the Committee on Revision to frame contractions of the full chemical names of such compounds that would be as indicative of composition as the full names. Thus, hexamin could be used for the official hexamethylenamin, sulphomethane for sulphonmethane or sulphonal, sulphoethane for sulphonethylmethane or trional, and acetphenetin for acetphenetidin or phenacetin. In other words, instead of using the full chemical names, employ contractions, and in a short time the medical profession would come to know what they stood for and use them.

DR. HENRY BEATES, Philadelphia: Many of the points have been well taken, but the discussions are dealing largely with effects and ignore causes. The very question of the necessity for the existence of the National Formulary is raised by its containing elixirs that apparently are imitations of certain valuable proprietaries. Proprietaries of intrinsic value must not be swept away in the effort at annihilation of proprietaries that are worthless, and to be in the position of imitating meritorious proprietaries is not a desirable or wise one.

As to nomenclature, yesterday we heard from one of the papers that phenolphthalein is known under some twenty different names, because of proprietary business, in its bad sense. If these things are to be corrected, the question underlying the practice of the prevalence of such evil must receive serious consideration. I believe that the lax patent and copyright laws of this country supply a great opportunity for this undesirable sort of commercialism to thrive. There is nothing in which the possible usefulness of this Section promises so much good as attention to and correction of these lax laws. Both patent and copyright laws are abused here and abroad, and manufacturers are supplied with exceptional opportunity to indulge in unprincipled commercialism, by which the medical profession is forced to play the cat's paw.

The Pharmacopeia, because of expiration of patent, has in it to-day (under its official name of "acetphenetidin") phenacetin, a useful and valuble medicament, of which the manufacturers formerly controlled the cost, thus robbing afflicted humanity of a valuable remedy except at extortionate prices.

The entire Galenic materia medica is seriously affected by the conspicuous absence of official preparations made according to physiologic standardization. Thus the absence of official standardization, not of a certain percentage, but of a uniform degree of strength, invalidates the entire materia medica. Professor Wood just referred to belladonna. I may be a very poorly informed practitioner of medicine, but I did not know until then that the tincture of belladonna could be regarded as a standardized Galenic preparation, representing 10 per cent. of something, and that any pharmacist who gives more or less than that standard is subject to prosecution.

As to naming manufacturers because of tested reliability in certain remedies, this has its advantages and disadvantages, but certain it is that in our present chaotic condition, those physicians who practice medicine for the best interests of their patients must specify the product of some well-known and tested manufacturer. It is to be hoped that the influence of this Section will focus itself at least on the careful study of the all-important matter of patent and copyright law, so that by 1910, when the Committee on Revision of the United States Pharmacopeia will meet, something will have been achieved by which we can have a common standard of physiologic or therapeutic value, to which we can conform in standardizing Galenic preparations.

PROF. CHARLES CASPARI, JR., Baltimore, Md.: As chairman of the subcommittee on nomenclature it has been my privilege for many years to assist in the revision of the Pharmacopeia. The aim of the subcommittee on nomenclature was to place in the Pharmacopeia names that were truly indicative of the character of the product selling under that particular name, making it as simple as possible and yet not in the least destroying its identity. For that reason acetphenetidin and similar names were introduced where it was not possible to use another name, unless the trade-mark name would be adopted. A great deal has been said this morning in regard to either insufficient or objectionable nomenclature of the Pharmacopeia, and yet I think physicians as well as pharmacists will recognize, if they pay attention to the subject, that the names are as simple as it is possible to make them without encroaching on the field of trade-markism, as we might call it. While phenacetin was still a proprietary product, protected by the laws of this country, it was impossible to introduce that name into the Pharmacopeia for the reason that phenacetin was selling at an exorbitant price, much above its real value. The object was to place in the hands of physicians an article of identical composition and merit with phenacetin but at a very much lower price by using the term "acetphenetidin"; the former was selling at 85 cents an ounce, whereas the latter could be had for $3 a pound. Of course, the expiration of the patent on phenacetin has helped the matter largely. I want to assure all physicians in this country that the only object of the Committee on Revision has been to place in their hands names as simple as the particular case would justify and yet truly characteristic of the chemical character of the drug. Objection has also been made by one of the speakers this morning to introducing the elixir of iron, strychnin, and quinin. Perhaps never has a preparation been more largely prescribed than this one by the medical profession. Prior to introduction in the Pharmacopeia probably fifty preparations were offered by various manufacturing houses, no two alike, and often differing greatly in strychnin or quinin content. It was thought desirable to have a preparation so largely used by physicians uniform in composition the country over and have its name indicative of the composition. We have now a solution of true phosphates in such form in the official preparation. There is no denying the fact that the preparation is used in immense quantities; barrels of it are made by manufacturers. While a few physicians still cling to the product of some particular manufacturer, I believe the evil has been abated which required the druggist to carry ten or fifteen brands of the one product, with attendant change, gelatinization, etc., all of which brought pocket-book loss to him and great discredit to the manufacturers and also to the physicians. The fact that the medical schools, unfortunately, do not pay the attention they should to teaching the students of medicine the character and contents of the Pharmacopeia is, I think, recognized. One of the disadvantages under which the medical student finds himself to-day when he leaves the university and starts out in medicine is that he has very little knowledge of the Pharmacopeia and its character, but he is quite familiar in many instances with books which treat largely of prescription-writing and ready-made prescriptions.

DR. JOHN J. TAYLOR, Philadelphia: I feel that I am under the necessity of sounding a somewhat discordant note. I want to say that, in the work of this Section we are not always working along the right tracks. We are not doing what we should to lay the foundation. The place where our preliminary work should be done is before the Council on Medical Education. We want to encourage there a more thorough training of medical students in materia medica and therapeutics. The last speaker has very justly said that, when a medical student passes out of the school, he practically has to learn his materia medica. Students have a little theory given to them, but we have very little training in prescription-writing, whether it be for a single remedy or for a suitable combination of remedies, or in putting up prescriptions. I have observed that those students who have passed a preliminary course in practical pharmacy before taking their medical course have understood the teaching in therapeutics much better than those who have not had such instruction. As physicians we have to deal with real things and we ought to know these things themselves and their peculiar characteristics, so it is not teaching we want so much as training, and that means more than we get in our medical colleges to-day or ever have done. We also need training of the pharmacists. When the physician has prescribed a National Formulary preparation for something which he has heretofore had as a proprietary and gets a muddy conglomeration at a high price instead of a well-made mixture at the proprietary's price, he becomes discouraged and justly so. The National Formulary, as it has developed later, seems to be a list of substitutes for things the physician is already using. I think any substitute for what the physician is using should be eliminated.

DR. L. F. KEBLER, Washington, D. C.: One point made by Dr. Fussell, namely, that certain products should be eliminated from the Pharmacopeia because of their little use appeals to me from one point of view but not from another. When we remember that there are promoters of medicines who take advantage of every possible situation that presents itself we should be very circumspect about giving any questionable drug standing. For example, phytolacca, referred to by Dr. Fussell, is one of the common constituents of a large number of antifat remedies, and I also recall its presence in a so-called magic foot-draft remedy. When these people are given hearings and the worthlessness of the drug pointed out, for the purpose advertised, what do they say? "That is recognized in the Pharmacopeia. It is approved by the medical and pharmaceutical profession." While I knew that caffein was used to a large extent in various combinations I did not think the medical profession was increasing its use. Dr. Hallberg's statement that the use of opium by physicians is apparently decreasing is very gratifying. While the use of opium has not been increasing during the past ten years, judging from the imports, there is still a large amount of opium used improperly, and, moreover, other habit-forming drugs are replacing opium and morphin.

Mr. M. I. Wilbert, Washington, D. C.: Where one is absolutely handicapped and has no other recourse for a reasonable standard than the name of the manufacturer, specifying that name may be justified, but where one has a reasonably just standard that can be enforced by law, there is no justification for it. We have at our command the machinery to maintain a standard and every one who is interested in the preparation or use of medicine should be interested in getting that machinery in order and putting the established standards into force. The functions of the retail druggist or of the pharmacist are the preparation, verification, preservation and the dispensing of medicine. For many years he has confined himself largely to the dispensing of medicine and he appears to think that his only function is to dispense medicine on physicians' prescriptions, and the physician, in accepting this limitation, is prescribing preparations of this man's manufacture and that man's manufacture in the mistaken belief that his patient is getting the very best that is to be had. Yesterday morning Dr. Wood showed us that fluid extract of ergot is not fluid extract (Smith) because it comes out of a fluid extract of ergot (Smith) bottle. He showed us that this preparation can be ruined in a few hours and certainly deteriorates in a week or a month, so that if you prescribe any given manufacturer's ergot you are not getting what you think you are getting, but what the pharmacist happens to have in the bottle. Those of you who have seen the Hygienic Laboratory Bulletin on the "Standardization of Digitalis" will appreciate the need of going further than specifying some particular manufacturer's name. You physicians must develop pharmacists in the country, you must develop them to do more than dispense, they must verify and must know how to preserve their medicines. Unless they know how to preserve their medicines and to verify them from time to time you are not getting what you think you are getting because you happen to specify some manufacturer's make. The need for this is becoming more and more apparent and the justice of it is also apparent. The retail druggist is responsible for the things that he is dispensing under existing laws; so that as soon as he removes a cork from the bottle he is responsible for the contents of that bottle, and if he is not capable of verifying it you have recourse under law to compel him to discontinue the business or to improve himself. The medical profession should compel the retail druggists of this country to qualify in such a way that they can verify their medicines and assure physicians they are getting what they are prescribing, and if they confine themselves to the established standards they will get what they expect to get.

Prof. H. P. Hynson, Baltimore, Md.: The statistics Professor Hallberg is collecting really show very plainly that therapeutic nihilism has not increased; there is still something for the pharmacist to do. Should statistics control the contents of the Pharmacopeia? We have reached that stage in pharmacology where we should seek something higher than that. Its mere local or national popularity does not seem enough to determine whether or not a substance shall be introduced into the Pharmacopeia. It seems to me that it ought to have real pharmocodynamic value. I do not say therapeutic value, because I do not believe therapeutists have reached a point where they have established standards. When an article's place in the Pharmacopeia is dependent on its actual pharmacologic action, which has been established or on its adjuvant use or action, then we shall have established a Pharmacopeia which will be a credit to science and to the age.

Mr. F. M. Apple, Philadelphia: From observations in my store I would attribute the increase in the use of caffein to the commendable custom of the physicians of formulating their own prescriptions in preference to using one of the compound acetanilid mixtures. My experience proves that the caffein is almost invariably prescribed with acetanilid or some other depressing drug; hence the question arises, can the medical men be justly condemned for the increased use of caffein?

Dr. C. S. N. Hallberg, Chicago, Ill.: With reference to the mixtures, there is one point as disclosed by elixir of quinin, iron and strychnin which is that a preparation of that kind cannot be successfully made extemporaneously. If physicians prescribe mixtures of that kind they must be made in advance in order to compare with those made by manufacturers, and therefore the recognition of the formulas in the Pharmacopeia and that applies to a great many preparations of a similar character. Besides, the time does not admit of the expenditure of any particular skill or experience in the preparation of many of these mixtures in ordinary prescription quantities when a larger quantity can be made just as well. The criticism of Dr. Taylor in reference to the National Formulary has been largely exploded. It is not true that the National Formulary has substitutes for proprietaries or that it is based on them. The National Formulary is the survival of a collection made by the American Pharmaceutical Association as far back as 1868 by J. F. Hancock of Baltimore, Md. (who is present here to-day), and for forty years we have been collecting formulas and manufacturers have taken these formulas which have appeared in the proceedings of the American Pharmaceutical Association, sometimes changed the color and flavor and vastly extended the claims for their virtue. That credit is what they are entitled to and nothing more. There is scarcely a preparation which is due to any originality on the part of any of the present proprietary pharmaceutical manufacturers.

With reference to the pharmacodynamic and adjuvant effect of drugs the difference between the pharmacologic and the psychologic is a wide one, and yet there is a very close relationship as illustrated this morning with reference to the extended use of the elixir of lactopeptin. It is sometimes difficult to draw the line as to whether it is the action on the heart and respiration, or whether it is simply the gustatory effect, or the effect of the optic nerve that is supposed to produce the medicinal effect.

Dr. M. Clayton Thrush, Philadelphia: When the time arrives that every pharmaceutic manufacturing house in this country adheres strictly to the Pharmacopeia and every pharmacist is a reputable pharmacist and adheres to this standard, it will not be necessary to specify a certain manufacturer's drug. For example, every physician in this room knows that there are different qualities of drugs on the market, that some druggists dispense more reliable drugs than others, that some pharmaceutic firms send out better products than others. I know as a reputable pharmacist that eight prescriptions out of ten specify Squibb's when chloroform is prescribed. I am sorry that physicians have to do this. But the fact remains that they do it, and we know why they do it, and it is perfectly nonsensical to say that they do not do it. I know that Squibb's ether, chloroform and ergot are specified eight times out of ten. I will give a beautiful illustration of this. I was ready to operate on a patient, the physician proceeded with the anesthetic, but he could not get the patient under the effects of the chloroform with the usual quantity and he had to use two or three times the usual quantity for the second stage of anesthesia. This occurred every time this particular make of chloroform was used. Fortunately, in refilling the bottle used on these occasions, instead of Squibb's I noticed the pharmacist gave me chloroform out of a large pound bottle that had been opened and allowed to stand, although it was from a firm considered one of the best firms in this country. It was labeled "U. S. P. Chloroform, For Anesthesia Purposes Only." That is simply one illustration of an occurrence that every practicing physician meets frequently. I don't think there is any basis for the study of medicine more valuable than a good classical education, except a thorough knowledge of pharmacy. Every man who wishes to practice medicine should take a course in pharmacy. There is a great field in the future for our colleges of pharmacy. Almost all our colleges of pharmacy, with the exception of a few of our largest, are connected with medical schools, and I do not see why even our largest could not do as Harvard and others which confer a combined degree of A.B. or B.S. with the M.D. for a certain course which curtails a year or more than when taken separately. Why could not we combine pharmacy and medicine, likewise giving a little more time than we have been, just the same as the combined M.D. degree and classical degree? That would turn out all men having a good practical knowledge of pharmacy as well as of medicine. Every physician who has graduated in pharmacy will tell you that it has been the greatest help to him in the practice of medicine.

PROF. H. P. HYNSON, Baltimore, Md.: What possible difference could there have been in these chloroforms mentioned by Dr. Thrush?

DR. M. CLAYTON THRUSH, Philadelphia: The chloroform as sent out by this particular firm was not up to the official standard. We required three times as much on the average to produce anesthesia.

PROF. H. P. HYNSON, Baltimore, Md.: Do you mean it was diluted with alcohol?

DR. M. CLAYTON THRUSH, Philadelphia: I do not know, as no chemical test was made to determine this point.

PROF. CHARLES CASPARI, JR., Baltimore, Md.: In reply to the remarks made about co-education of pharmacists and physicians, I would like to say that this is, I believe, prohibited by the very charter of your Association of Medical Colleges. I have been informed by very good authority that the simultaneous attendance of students in schools of medicine and pharmacy is positively prohibited. If the association will recede from that position and allow the students to attend lectures in pharmacy then the ideal condition will prevail.

DR. REID HUNT, Washington, D. C.: There has been considerable discussion in the Public Health and Marine-Hospital Service as to what ether should be used; some manufacturers complained that they were discriminated against, since surgeons frequently specified a certain brand and this was supplied. A number of samples of ether from various manufacturers were bought on the open market and examined. All met the requirements of the U. S. P. There were absolutely no difference between them. Either the physicians were mistaken in believing one to be superior or the tests of the United States Pharmacopeia do not suffice fully to determine the value of the ether. As regards chloroform, it is a question whether the percentage of ethyl chlorid may not be important; if it is, the present requirements in the Pharmacopeia are insufficient.

DR. BERNARD FANTUS, Chicago, Ill.: How many patients of Dr. Thrush showed this peculiarity in reference to requiring three times the usual amount to induce anesthesia? My experience shows that some patients, especially alcoholics, will be refractory to anesthetics.

DR. M. CLAYTON THRUSH, Philadelphia, Pa.: It was tried in fifteen cases. In every case this chloroform showed the same result.

Nutmeg Poisoning.—At the meeting of the Royal Society of South Africa, Oct. 20, 1909, Dr. M. Wilson called attention to the small number of cases recorded of poisoning by nutmeg, which he thought worthy of special remark since the condiment is so widely used. The explanation offered was that the activity of the poison was due to partial germination of the seed, which was rarely the case in the commercial article. In support of this he directed attention to what he considered an analogous case, that of a fir seed (*Dana pitje*) which was largely eaten by children near Cape Town without any bad results, but after partial germination had caused serious consequences. The nutmeg is generally supposed to be a powerful narcotic when taken in large quantities but we have not seen before anywhere this theory of the poison being developed by arrested germination.

METHODS OF SERUM DIAGNOSIS IN BACILLARY DYSENTERY (INFECTIOUS DIARRHEA) IN INFANTS *

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This article deals with a systematic study of certain methods of diagnosis from the blood serum in infants suffering from dysentery (infectious diarrhea). It is assumed from previous work in this field, and is further evidenced by the present study, that this type of summer diarrhea, denominated in the wards of the Boston Floating Hospital "infectious diarrhea," has direct etiologic relation with one or more of the varieties of organisms now grouped under the species name of *Bacillus dysenteriæ*. In all the cases of infectious diarrhea considered, and in the control cases as well, a thorough search has been made in the stools for the dysentery bacillus. It was not deemed advisable, in so far as the serum tests were concerned, to consider varieties of the bacillus beyond the first generally accepted division of these organisms into mannit fermenters (Flexner type) and mannit non-fermenters (Shiga type); a more detailed consideration of the varieties of dysentery bacilli obtained in relation to the clinical aspects of the individual cases will later be taken up by one of us (Schorer).

SERUM DIAGNOSIS BY W. P. LUCAS AND J. G. FITZGERALD

Two recognized methods of serum diagnosis, namely, the reaction of agglutination and the reaction of fixation, and one new method, the reaction of conglutination, have been tried, as far as possible, with the blood serum of each case in conjunction with both a mannit-fermenting (Flexner) and a mannit-non-fermenting (Shiga) variety of the dysentery bacillus. In many cases these tests have been repeated at intervals in the course of the disease.

The agglutination reaction has been employed by all investigators who have studied cases of bacillary dysentery attentively since the first publication of Shiga, who used this reaction as a proof of the etiologic relation of his bacillus to the disease. The value of the reaction in diagnosis, owing to its delayed appearance and its relative infrequency in the disease, would not, by common consent, appear to be great (Shiga,[1] Lentz[2]). The percentage of positive reactions has varied considerably in the hands of various observers, owing largely to individual differences in technic as well as to the dilution accepted as indicative of a positive reaction. No observers, as far as we are aware, have used as uniform a method as would seem desirable (see below under "Technic"). And apart from individual variations in method the following factors would seem of importance in determining the value of the agglutination reaction in dysentery:

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* This research was rendered possible by a fund raised for the purpose by Drs. John Lovett Morse and H. I. Bowditch.

[1] Shiga: Bacillary Dysentery, Osler's Modern Medicine, ii, 781.

[2] Lentz: Dysenterie; Kolle and Wassermann's Handbuch der Pathogenen Mikroorganismen, 1909, II Ergänzungsband, 391.

1. The susceptibility to agglutination of the organism employed as a reagent; this "agglutinability," we believe, best explains the clumping of certain bacteria by normal sera (Bordet,[3] Levi della Vida[4]). From this aspect the mannit-fermenters, and especially the Flexner strain, are better agglutinators than the non-fermenters (Shiga-Kruse).

2. The relation of the organism employed to the bacillary type causing the infection of the patient under consideration (Lentz,[2] Amako[5]). In this connection it may be noted from Amako's results that the Flexner strain is the most representative mannit-fermenter and agglutinates well with the sera of patients suffering from infection by the other mannit-fermenting types. Our results, then, obtained with the Flexner bacillus may be taken as indicative of a reaction to any one of the mannit-non-fermenters which are the preponderating organisms in infantile dysentery.

The reaction of fixation (Bordet-Gengou) has been employed with success as a means of diagnosis in adult dysentery by Dopter.[6] The reaction was shown in his results to occur with greater constancy and earlier in the disease than the agglutination reaction. It was particularly noted by Dopter that the reaction is present with both mannit-fermenting and mannit-non-fermenting strains, irrespective of which was the causative organism in the case in question. This and similar observations have given rise to the erroneous opinion that the fixation reaction is less specific than agglutination. That such, however, is not the case has been shown by Haendel, who showed that in properly chosen minimal doses the individual strain of bacillus producing the immunity or infection would alone cause fixation with the serum.

The reaction of conglutination has been hitherto largely of interest in the more theoretical studies of the mechanism of immunity. In 1906 Bordet and Gay[7] described a thermostabile (56 C.) "colloidal" substance in bovine serum which has the property of producing a characteristic clumping and increased dissolution of red blood cells that have been treated with both a sensitizer (heated hemolytic serum) and an alexin. A probably analogous substance was described at about the same time by Manwaring.[8] Bordet and Gay outlined in detail the conditions under which this substance acts, and their work was later amplified by Bordet and Streng.[9] A wholly analogous effect by bovine "conglutinin" (Bordet and Streng) on bacteria has since been described by Streng.[10] Streng has clearly shown that this conglutinin bears no relation to the normal agglutinins for various bacteria present in bovine serum which he removes by specific absorption before employing the bovine serum for the reaction. He suggests the possible employment of this reaction for the diagnosis of infections of bacterial origin and mentions positive results obtained with the serum of two cases of typhoid (sensitizer) on adding typhoid bacilli, alexin (guinea-pig) and bovine serum deprived of its normal agglutinins for *B. typhosus*. This article comprises the first systematic study of this method as a means of diagnosis. Tables 1 and 2 present the essential results of our investigation and are preceded by a description of technic and explanation of the tables.

TECHNIC OF SERUM DIAGNOSIS

Blood in all cases was taken from either the finger or toe in amounts varying from 1 to 4 c.c. The method employed to obtain this amount is simple. The hand or foot was immersed in hot water, dried thoroughly, and a bandage applied from the elbow or knee down to the hand or foot. The puncture was made with an arrow-headed lancet. The blood was taken up in an ordinary teat pipette and, as occasion demanded, emptied into a small test-tube. The serum was separated and centrifugalized and the clear serum decanted. The amount of clear serum varied from 0.5 to 2.5 c.c.

The bacteria used for the reactions were in the form of suspensions from large agar cultures (Blake bottles) suspended in 0.9 per cent. salt solution to which 0.1 per cent. formalin had been added. The sterility of the suspension was complete in from forty-eight to seventy-two hours. Each suspension prepared was then standardized by diluting it with salt solution to the opacity of a standard suspension of barium sulphate (0.3 gm. barium sulphate to 100 c.c. of distilled water). We had found from previous experimentation that a formalinized culture was more sensitive to agglutination than a twenty-four-hour living suspension.[11] Such standardized and formalinized suspensions of both the Flexner and the Shiga organisms were prepared at intervals and used for all our tests.

AGGLUTINATION TESTS

Small test-tubes, 7.5 by 1 cm., containing 4 to 5 c.c., were used, and all our dilutions were so arranged as to give us a volume of 1 c.c. of the dilution wanted. Thus, 0.2 c.c. of a patient's serum was put into each of two test-tubes, one for the Flexner series and one for the Shiga series. To each of these was added 1.8 c.c. of 0.9 per cent. saline, giving us in each tube a double amount of 1-10 dilution. One c.c. from each of these tubes was transferred to the tubes to be diluted to 1-20 and 1 c.c. of sodium chlorid solution added, and so on until the limit of dilution desired was obtained. When all the dilutions were made up, two drops of our formalinized, standardized culture of Flexner or of Shiga were added to each tube of a given series. The tubes were placed in a special wooden rack and allowed to stand at room temperature for twenty-four hours before readings were taken. These readings were taken without disturbing the tubes from the time they were set up, so that there was no shaking at any time except at the initial mixing. These readings were considered final and were compared with a control of 1 c.c. of salt solution containing formalinized culture of Flexner or Shiga. The criterion of a positive reaction was complete sedimentation of the bacteria. Our ordinary dilutions were 1-10, 1-20, 1-40, 1-80, 1-100, 1-200, 1-400, 1-800, and if all were positive the test was repeated, if possible, in higher dilutions.

FIXATION

Our steps in this were as follows: 0.1 c.c. of eighteen- to twenty-four-hour guinea-pig serum ("alexin") was always used. To this was added 0.1 c.c. of patient's serum (heated to 56° for half an hour) plus 0.9 c.c. of 0.9 per cent. salt solution and one drop of the formalinized suspension of Flexner or of Shiga in separate series. This was incubated at 37° for one hour and then the hemolytic serum composed of 1 c.c. of 5 per cent. washed sheep's corpuscles and 1 c.c. of a dilution of inactivated hemolytic serum (s. rabbit -> sheep 56°) containing three times the minimal hemolytic dose was added, and the tubes incubated again at 37° until the controls had hemolyzed, i. e., from fifteen to thirty minutes. The following controls were made in each case (1) salt solution was substituted for patient's serum; (2) salt solution substituted for the Flexner or Shiga suspension; (3) a number of sera were tested at the same time, and where there were positive as well as negative fixations the negative serums acted as complete controls. Readings were taken as soon as the controls showed complete hemolysis, or at the end of one-half hour. In many positive cases complete fixation (absence of hemolysis) was also present at the end of twenty-four hours, but this was not considered necessary for a positive reaction; a "partial fixation" was noted where there was a marked difference between the controls and the tubes being tested, but such partial fixation was estimated only when the controls were completely hemolyzed.

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[3] Bordet: Studies in Immunity (Gay), John Wiley and Sons' New York, 1909, p. 496.

[4] Levi della Vida: Sul fenomeno dell' agglutinazione spontanea di alcuni batteri nelle solutione saline, Ann. d'ig. sper., 1905, xv, 413.

[5] Amako: Dysenterie Epidemien und Bazillen Typen, Ztschr. f. Hyg., 1908, lx, 93.

[6] Dopter: Sensibilisatrice specifique dysentérique, Ann. de l'Inst. Pasteur, 1905, xix, 753.

[7] Bordet and Gay: Sur les relations des sensibilisatrices avec l'alexine, Ann. de l'Inst. Pasteur, xx, 1906, 467; Studies in Immunity, p. 363.

[8] Manwaring: Auxilysins, Jour. Infect. Dis., 1906, iii, 225.

[9] Bordet and Streng: Les phénomènes d'adsorption et la conglutinine du sérum de boeuf, Centralbl. f. Bakteriol. I Abt. Orig., 1909, xlix, 260; Bordet-Gay: Studies in Immunity, Wiley and Co., New York, 1909.

[10] Streng: Studien über das Verhalten des Rinderserum gegenüber den Mikroben; Versuch einer neuen sero-diagnostischen Methode, Centralbl. f. Bakteriol. I. Orig., 1909, l, 47.

[11] Analogous results as to the superior delicacy of formalinized cultures over living suspensions have been obtained in the case of *B. typhosus* by Dr. M. E. Morse in the Laboratory of Serum Diagnosis, and will shortly be published.

CONGLUTINATION REACTION

We prepared our bovine serum for the tests by removing the normal agglutinins by absorption, by repeatedly adding formalinized suspensions of Flexner and Shiga alternately for periods of twenty-four hours each at 0°, centrifugalizing and filtering each time through filter paper until the serum failed to agglutinate either strain employed. One tenth c.c. of this bovine ("x") serum (conglutinin) was used in each experiment, plus 0.1 c.c. of twenty-four-hour guinea-pig serum (alexin) and a dilution of the patient's serum prepared as for a simple agglutination test. In these tests three drops of our standardized, formalinized culture was added. Controls with (1) bovine serum ("x") alone; (2) alexin alone; and (3) patient's serum alone, i. e., simple agglutination tests, were made, also (4) controls with salt solution instead of patient's serum. In this, as in the fixation tests, a number of sera were tested at the same time, so that the negative cases also acted as controls. The tubes were allowed to stand for twenty-four hours at room temperature, and then final readings were taken. In a few cases definite changes were noted at the end of a few hours, but most satisfactory results are to be derived from taking readings at the end of eighteen to twenty-four hours. Positive readings are those in which there is complete clearing of the tube with the organisms in flakes or granules, either clinging to the sides of the tubes as granular material or at the bottom as flaky granular sediment.[12] The clearness of the tube in comparison with the characteristic opacity of the controls is quite striking. No reaction was considered positive unless the tube was completely clear; partial clearing was not accepted at all.

BACTERIOLOGIC INVESTIGATION BY E. H. SCHORER

In the bacteriologic examination of the stools the following method was used:

Stools were received on sterile napkins from 8 a. m. to 6 p. m. at the Laboratory of the Floating Hospital directly from the wards, and those stools examined which showed mucus, blood or pus, except in the control cases, in which any specimens that might be obtained were examined. Repeated examinations were made until a considerable number of cultures of *Bacillus dysenteriæ* were obtained in the positive cases. In a number of cases stools were examined even after a number of isolations had been made, so that the relative frequency of *Bacillus dysenteriæ* from day to day might be determined.

Suspensions of favorable material were made in bouillon, after which they were allowed to stand for a few minutes, then a series of plates, seven to eight in number, were made. These were then incubated for twenty-four hours, after which all colonies resembling *Bacillus dysenteriæ* were picked off into glucose, semisolid medium, prepared after the method of Hiss and titrated to 1.5 per cent. acid. Twenty-four hours later all cultures not showing gas or motility were transferred to litmus milk. It very frequently happened that organisms which did not produce gas in the regular manner would show gas on stirring with a platinum needle. Such cultures were rejected. After twenty-four-hour suspension in litmus milk all cultures not coagulating the milk were transferred to agar slants, and from these, when twenty-four hours old, the morphology and Gram stain was determined. All cultures of Gram-negative bacilli were transferred to mannit, glucose, saccharose and dextrin serum-water media. Inoculation into gelatin and Dunham's solution were also made. Observations were daily made on the different sugars, and on the gelatin and Dunham's solution after ten days' incubation. Certain isolations from each case which up to this time had shown the cultural characteristics of *Bacillus dysenteriæ* were tested for their agglutination with two normal horse sera and with antidysenteric sera obtained from Dr. Flexner, the same being called "anti-Shiga" and "anti-Flexner" serum. These agglutinations were made from cultures on agar slants twenty-four hours old suspended in normal salt solution. Dilutions of the different sera were made with normal salt solution to 1-10, 1-20, 1-40, 1-100 and 1-200. Macroscopic agglutination tests were made by taking 1 drop of the suspended bacilli, 1 drop of the different dilutions of sera and 8 drops of normal salt solution to make 1-100, 1-200, 1-400, and 6 drops of salt solution to make 1-800 and 1-1600 dilutions, so that the suspensions were all fairly uniform in amount, varying at most 2 drops. These were then incubated for one hour, after which they were allowed to stand at room temperature for twenty-four hours, when the readings were made. In some cases where there was doubt, microscopic examinations were made. Inasmuch as some of the organisms were agglutinated by normal horse sera as high as 1-50, no agglutination tests lower than 1-100 were considered of diagnostic value.

Discussion of Tabulated Results

Table 1 includes 45 cases studied, in which the clinical history and diagnosis indicates infection with *B. dysenteriæ*. In 38 of these cases (84.4 per cent.) the dysentery bacillus was actually obtained. Of these, all but two had shown blood in the stools at some time. The various serum reactions were positive at some time in the disease in the following percentages of cases:[13]

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[12] This adhesion to the side of the tube was especially emphasized by Bordet and Gay in their work with red blood cells.

[13] No doubtful reactions are included in the following estimations. They will be found, however, in all instances, to preponderate in the positive cases.

Agglutination to Flexner strain positive in 25 of 45 cases tested = 55.5 per cent.
Agglutination to Shiga strain positive in 12 of 45 cases tested = 24.4 per cent.
Fixation to Flexner strain positive in 18 of 43 cases tested = 41.8 per cent.
Fixation to Shiga strain positive in 19 of 42 cases tested = 45.2 per cent.
Conglutination to Flexner strain positive in 24 of 38 cases tested = 63.1 per cent.
Conglutination to Shiga strain positive in 8 of 37 cases tested = 21.6 per cent.

If we limit our estimation to those 38 clinically positive cases from which *B. dysenteriæ* was actually isolated, the relation of percentages of positive results is but little changed:

Flexner agglutination positive in 57.8 per cent.
Shiga agglutination positive in 26.3 per cent.
Flexner fixation positive in 43.2 per cent.
Shiga fixation positive in 47.2 per cent.
Flexner conglutination positive in 60.6 per cent.
Shiga conglutination positive in 21.8 per cent.

Before considering further the comparative value in diagnosis of the three methods, we may first summarize the results obtained in the cases in which the clinical history did not indicate an infection with the dysentery bacillus (Table 2).

TABLE 1.—CASES IN WHICH THE CLINICAL HISTORY INDICATES AN INFECTION WITH B. DYSENTERIÆ

Case No.	Clinical Diagnosis.	Day of Disease.	No. Days Blood Found in Stools.	No. of Stools Examined. m=Mucous, b=Bloody, f=Fecal.	Tubes of B. Dysenteriæ and Character.§	P=Positive. N=Negative. Agglutination.†		Fixation.		Conglutination.‡	
						Flexner.	Shiga.	Flexner.	Shiga.	Flexner.	Shiga.
1	Infectious diarrhea	10	10	1 b & m	1 M.	P 100		P		P 100*	
		14				P 320+	P 20+				
2	Infectious diarrhea	9	2	2 b & m	15 M.	P 80		N		P 100	
		12				P 80	P 10+	P	N	P 200+	P 200
		15				P 80	P 40+	P	P		
5	Acute infectious diarrhea	9	2	1 b & m	2 M.	P 30	P 120+	P	P		
7	Acute infectious diarrhea	6	4	2 b & m	25 M.	P 320	P 40+	N	N	P 200	P 200
		7				P 160	P 80	P	P		
14	Acute infectious diarrhea	1	1	2	24 M.	N 10+	P 20				
15	Infectious diarrhea	5	3	2 m.	16 M.	P 40+	P 40+	P	P		
16	Infectious diarrhea	21	3	2 b & m	5 M.	P 400	P 200+	?	?		
17	Subacute infectious diarrhea	14	1	2 m.	9 M.	P 100+	P 40+	P	P		
19	Acute infectious diarrhea	9	3	6 b & m	1 M.	P 40	P 40	P	?		
		21				N 10	N	P	P	P 400*	P 10
20	Chronic intestinal indigestion	12	4	2 m.	3 M.	N 10+	P 20+	P	?		
		25				N 20+	N 10	N	P	P 800*	P 20
21	Infectious diarrhea	3	2	4 b & m	8 M.	N	N	P	?		
		14				P 80+	N	P	P	P 100	N
24	Infectious diarrhea	8	2	3 b & m	8 M.	P 100+	N	N	N	P 200	N
25	Infectious diarrhea	2	0	3 m.	19 M.	N	N	P	N	P 100	N
		8				P 100+	N	P	P		
27	Infectious diarrhea	4	4	1 m.	3 M. N	N	N	N	N	? 20	N
29	Infectious diarrhea	7	3	5 b & m	2 M. N	P 100	N	N	?	P 400	N
33	Acute infectious diarrhea	6	6	3 b & m	31 M.	N	N	N	N	N	N
		12				P 100+	N			P 400	N
34	Infectious diarrhea	17	Pus.	5 m & b	13 M.	N 10+	N	N	N	P 500	N
35	Acute infectious diarrhea	5	0	4 m & b	12 M.	P 40+	N	N	N	P 400	N
		16						N	N		
36	Infectious diarrhea	10	5	4 b & m	7 M.	P 200+	N	P	P	P 800	N
38	Infectious diarrhea	8	2	3 b & m	8 M., 3 M. N.	N	N	?	?	N	N
40	Infectious diarrhea	8	8	1 m.	16 M.	N	N	N	N	P 100	N
41	Infectious diarrhea	7	7	2 m.	5 M.	N	N	N	N	N	N
		14				P 80+	N	N	N	N	N
44	Infectious diarrhea	6	3	2 m & b	7 M.	P 40	N	P	N	P 100	N
42	Infectious diarrhea	7	4	2 b & m	19 M.	N 10+	N	N	N	N	N
		10				N	N			N	N
47	Infectious diarrhea	9	And pus.	4 b & m	41 M.	N	N	N	N	? 40	N
48	Bronchopneumonia; infectious diarrhea	3	3	1 b & m	7 M.	N	N	N	N	? 20+	N
49	Infectious diarrhea	12	7	1 m.	14 M.	P 80+	N	N	N	N	P 10+
50	Infectious diarrhea	2	0	2 m.	10 M.	N 10	N	N	N	? 20	N
57	(Infantile paralysis) intercurrent infectious diarrhea	4	?	2 b & m	5 M	N	N	N	N	N	N
59	Infectious diarrhea	21	9	4 b & m	2 M. N	N 20	N	P	P	? 20	N
60	Infectious diarrhea	12	8	4 m & b	4 M.	P 80	N	P	P	N	N
61	Infectious diarrhea	12	6	5 m.	1 M.	N 10	N	N	N	P 800	P 20
64	Infectious diarrhea	9	8	2 m & b	25 M.	N	N	N	P	P 800	N
62	Infectious diarrhea	9	9	1 m.	2 M.	P 100+	N	P	P	? 40	N
26	Infectious diarrhea	35	3 ?	3 b & m	27 M.	P 100	N	N	N	P 200	N
		50				P 80+	N 10	N	P		
28	Infectious diarrhea	7	3 ?	7 b & m	2 M.	P 40+	N	N	N	N 10	N
		17				P 40	N	P	P	P 800	P 40*
31	Infectious diarrhea	4	0	5 b & m	20 M.	N	N	N	P	N	N
11	Scurvy. Infectious diarrhea	3	3	3 b & m	0	P 40	N 10+	N	N	P 200	P 200
8	(Intestinal indigestion.) Recovered. Infectious diarrhea	60	60	3 f	1 M.	N 10+	N	N	N	P 400	N
45	Infectious diarrhea	3	3	2 f	0	N	N	N	N	N	N
		9				N 10	N	N	N	P 100	N
46	Infectious diarrhea	8	?	8 b & m	0	N	N	?	N	? 200	N
		14				N	N	?	?	P 200	N
9	(Indigestion.) Convalescent. Infectious diarrhea		0	1 f	0	P 80	P 40	P	P		
18	Infectious diarrhea. Recovered.	30	0	1 m.	0	P 200+	P 200+				
22	Lobar pneumonia. Infectious diarrhea	1	1	4 b & m	0	N	N	P	?	? 40	N
		12				N	N	P	P	P 200	N
23	Infectious diarrhea	4	4	2 m.	0	N 10+	N 10	N	N		
		6				N 10	N	N	N		

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§ In this column M stands for mannit-fermenters, M N for mannit-non-fermenters, and O for no *B. dysenteriæ*.

† Reactions to the Flexner type of 1-40 (in one instance 1-30) and above are called positive ("P"); with the Shiga reaction at 1-20 are positive. In each case the high limit of agglutination is given except where the figures are followed by an asterisk, in which cases it was not obtained. A plus sign (+) following the figures indicates that partial reactions were obtained in higher dilutions. When "Negative" alone is given it indicates that no action was obtained in the lowest dilution (1-10). The interrogation point (?) is used to indicate partial reactions.

‡ 1-80 and above constitutes a positive reaction to Flexner; 1-20 and 1-40 (*indicated by the interrogation point*) are doubtful (as having been found to occur in a few control cases.) A dilution of 1-10 and above with Shiga is positive. These limitations are of necessity arbitrary but are apparently borne out by our controls which are the only data on this subject as yet in existence.

Fifteen cases were clinically negative, from one of which only was the dysentery bacillus isolated. In these cases the reactions were positive as follows:

Agglutination to Flexner positive in 1 of 15 cases tested = 6.6 per cent.

Agglutination to Shiga positive in 0 of 13 cases tested = 0 per cent.

Fixation to Flexner positive in 4 of 14 cases tested = 28.5 per cent.

Fixation to Shiga positive in 0 of 14 cases tested = 0 per cent.

Conglutination to Flexner positive in 0 of 11 cases tested = 0 per cent.

Conglutination to Shiga positive in 0 of 10 cases tested = 0 per cent.

Comparing the results from the two sets of cases we find:

As regards the Flexner strain of bacilli:

1. Agglutination occurs rarely in negative cases (6.6 per cent.) and frequently in cases of dysentery (55.5 per cent.). Fixation occurs not infrequently in negative cases (28.5 per cent.), but more frequently in positive cases. Conglutination does not occur in the negative cases but occurs in 63.1 per cent. of the positive cases.
2. As regards the Shiga strain of bacilli: Positive reactions do not occur in negative cases. In the positive cases agglutinations were present in 24.4 per cent., fixations in 45.2 per cent. and conglutinations in 21.6 per cent.

It is impossible to say to what extent the reaction of the Flexner strain in low dilutions to the sera of supposedly non-infected cases is due to the agglutinability of the organism and to what extent to the presence of saprophytic or mildly infecting mannit-fermenters in the body. That such organisms are at times present has been shown and was true in one of our negative cases (No. 37), which case, however, failed to give any serum reaction. An attempt to avoid such reactions has been made by placing the minimal positive figure to Flexner at 1-40, and even at that dilution one undoubtedly negative case (No. 56, marked "Pos.") gave a reaction. It would not, however, seem fair to rule out all the positive cases in which reaction was obtained at 1-40 *only*, although such a division would further emphasize our most novel contribution, the superior value in diagnosis of the new conglutination reaction. The agglutination of the Shiga type would seem to be due to "common" agglutinins rather than to real infection with this variety of the bacilli, as it was found in 3 only of the 38 bacteriologically positive cases (27, 29, 38), in no one of which, curiously enough, was any reaction to the Shiga bacillus obtained.

The occurrence of positive fixation reactions to Flexner in over a quarter of the negative cases is not easily explainable. The fact that it occurs more often in positive cases adds little to its diagnostic value. Had it been possible to employ several doses, a minimal dose for positive cases would doubtless have given no reaction in negative cases. At any rate, the occurrence of fixation with the Shiga strain in even a higher percentage of the positive cases, whereas it did not occur in negative cases, would indicate that this organism is better for such tests.

It is already evident that the conglutination reaction is superior to the other two tests in the diagnosis of dysentery infection, from the standpoint of its non-occurrence, at the arbitary limit chosen, in control cases, the high percentage of occurrence in positive cases, and as the relatively better indicator of the bacillary type of infection concerned, judging from the low percentage of occurrence of the reaction to Shiga (21.6 per cent.) and the high occurrence to Flexner (63.1 per cent.) in these cases, due to mannit-fermenters.

TABLE 2.—CASES IN WHICH THE CLINICAL HISTORY DOES NOT SUGGEST INFECTION WITH B. DYSENTERIÆ

Case No.	Clinical Diagnosis.	Day of Disease.	No. Days Blood Found in Stool.	No. of Stools Examined. m=Mucous. b=Bloody. f=Fecal.	Tubes of B. Dysenteriæ and Character.	P=Positive. N=Negative.					
						Agglutination.		Fixation.		Conglutination.	
						Flexner.	Shiga.	Flexner.	Shiga.	Flexner.	Shiga.
3	Feeding		0	2 f m.	0	N 20+					
4	Feeding	4	0	1 f m.	0	N		N	N	N 10	
13	Feeding		0	1 f	0	N 10	N 10	?	?		
12		60	60	1 f	0	N 10	N 10	?	?		
30											
	(Diarrhea.)	7	0	4 m.	0	N	N	N	N	N	N
		+7				N	N	P	N	? 40	N
32	Gastrointestinal indigestion	3	0	2 f m.	0	N	N	P	?	N	N
		7				N	N				
39	Feeding		7	1 m b.	0	N	N	N	N	N	N
43	Acute intestinal indigestion	8	0	3 f m.	0	N	N	P	N	? 20	N
		12				N	N	P	N	? 40+	N
52			0	2 f m.	0	N	N	N	N		
53			0	1 f	0	N	N	N	N	N	N
54			0	1 f	0	N	N	N	N	N	N
55			0	f	0	N	N	N	N	N	N
56			0	f	0	P 40	N	N	N	? 40	N
58			0	f m.	0	N	N	P	N	N	N
37	Feeding	6	2	2 m.	7 M.	N	N	?	N	N	N

It may be well at this point to reiterate that the conglutination reaction is not to be confused with agglutination. This is evident not only by the different appearance of *conglutination* (flecks on side of tube), but by certain other data from our tables: Thus, in 29 estimations in which either or both agglutination and conglutination were positive to the Flexner organism, conglutination was present (often 1-400 or 1-800) and agglutination absent in 11 instances; conglutination was present in higher dilutions (from two to twenty times) in 11 instances. The disproportion in percentages of reactions to the Flexner and Shiga strains is also greater with conglutination.

The striking superiority of the conglutination method as a means of diagnosis is further evident in considering the time of occurrence of the various reactions in the course of the disease. It is admitted by Shiga and others that few positive agglutination reactions can be expected before the second or third week in the disease; it is this fact in particular which renders the test of little value in the diagnosis of infants in whom the malady is characteristically acute. In Table 3 are summarized results from our tables as regards the percentage of positive reactions according to days of the disease, obtained with the Flexner strain and by the three methods:

TABLE 3.—PERCENTAGE OF POSITIVE RESULTS TO FLEXNER ORGANISM OBTAINED IN RELATION TO DAY OF DISEASE

Days	Agglutination %Pos.	Agglutination Number Estimations	Fixation %Pos.	Fixation Number Estimations	Conglutination %Pos.	Conglutination Number Estimations
1- 4	9	11	27	11	50	6
5- 8	56	16	28.5	14	60	10
9-12	59	17	53.3	15	72.7	11
13-16	75	6	60	5	66.6	3
17+	54	11	44.4	9	100	6

In respect to early diagnosis the conglutination is thus markedly superior to the other two methods. The apparent superior value of fixation over agglutination (27 per cent. to 9 per cent.) in the first four days is fictitious, as a positive reaction was obtained in 28.5 per cent. of the negative cases. The results with the Shiga organism show a similar course, except that they are lower in percentages, with the exception of the fixation reactions. The conglutination with Shiga is relatively and absolutely (with the exception of the initial days) lower than with the other reactions.

TABLE 4.—PERCENTAGE OF POSITIVE RESULTS TO SHIGA ORGANISM OBTAINED IN RELATION TO DAY OF DISEASE

Days	Agglutination %Pos.	Agglutination Number Estimations	Fixation %Pos.	Fixation Number Estimations	Conglutination %Pos.	Conglutination Number Estimations
1- 4	8	11	0	9	11.1	9
5- 8	19	16	21.4	14	9.9	11
9-12	27	15	45.4	11	18.1	11
13-16	50	6	60	5	0	3
17+	27	11	62.5	8	42.8	7

CONCLUSIONS

Of 45 cases of infantile dysentery ("infectious diarrhea") dysentery bacilli were isolated in 38 cases (84.4 per cent.). In 35 of these bacteriologically positive cases mannit-fermenting strains only were isolated. The mannit-non-fermenting variety (Shiga) was isolated in 3 cases, in one of which it was found in conjunction with fermenting strains. Dysentery bacilli (acid mannit) were found in one of 15 control cases.

Evidence of reaction on the part of each patient to either mannit-fermenting or mannit-non-fermenting types of dysentery bacilli was sought in the blood serum. In every case, so far as practicable, three methods of serum diagnosis were employed, the well-known reactions of agglutination and of fixation, and one novel reaction, the reaction of conglutination (Bordet and Gay, Streng). The serum in many cases was tested at intervals in order to determine the time of occurrence in the disease of a positive reaction by each method.

Reactions with the Flexner strain were much more frequent than those with the Shiga strain; this is owing not only to a direct relation to the organisms producing the infections under consideration, but also, in all probability, to a greater agglutinability of the Flexner organism.

In the doses employed, fixation reactions were obtained with the Flexner, but not with the Shiga strain in over a quarter of the control cases (28.5 per cent.). It was found with both Flexner and Shiga much more frequently (50 to 60 per cent.) in the positive cases subsequent to the first week.

A positive agglutination reaction was obtained in one control case to Flexner; it occurred in 55.5 per cent. of the positive cases with Flexner ranging from 9 per cent. during the first four days to 75 per cent. at the third week (thirteen to sixteen days). In about half as many cases a reaction was obtained with Shiga.

No positive conglutination reaction was obtained in control cases. The reaction was present more frequently than either agglutination or fixation during the disease (63.1 per cent. to Flexner). In addition, conglutination was obtained with this organism in 50 per cent. of the cases during the first four days of the disease. Reactions with the Shiga type as given by conglutination were absolutely and relatively fewer than by the other methods. This would seem to indicate a more absolute specificity for this reaction.

It would seem, then, that in the conglutination reaction we have a means of serum diagnosis in infections by the dysentery bacillus which is far superior to any other as yet devised. The further investigation of this new reaction as applied to diagnosis of other bacterial infections is of immediate interest.

In conclusion, we wish to express our thanks to Dr. F. P. Gay for suggesting this investigation and for advice during its pursuit.

SCOPOLAMIN AND MORPHIN IN NARCOSIS AND IN CHILDBIRTH

Report to the Council on Pharmacy and Chemistry

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[The following report was submitted to the Council on Pharmacy and Chemistry of the American Medical Association, which authorized its publication.
W. A. Puckner, Secretary.]

E. Schmidt isolated scopolamin from several solanaceous plants and described it about ten years after Ladenburg had obtained hyoscin from the mother liquors in the manufacture of hyoscyamin. Schmidt's studies were more complete and exact than those of Ladenburg, and the name scopolamin is now applied correctly to the substance for which Schmidt first gave the true formula, $C_{17}H_{21}NO_4$, Ladenburg having given the formula for hyoscin, incorrectly, as $C_{17}H_{23}NO_3$. The term scopolamin was at first applied to levo-rotary hyoscin by Schmidt, while Hesse called the racemic form atroscin, and this term is still used commercially by Merck.

The scopolamin, or hyoscin, sold was often impure, and, since different individuals showed marked differences in reaction even to the pure substance, dependent on a variety of conditions which will be discussed later, certain investigators maintained for a time that scopolamin and hyoscin were not identical, at least in physiologic action, but this question may be considered as definitely settled now, and chemists and pharmacologists agree that scopolamin and hyoscin are identical, and it may be taken that whatever is said here concerning scopolamin is intended to apply equally to hyoscin.[1]

The abuse of scopolamin in anesthesia has arisen largely through a misunderstanding of its pharmacologic action, and, since an understanding of these actions is essential to a comprehension of the question at issue, they will be summarized briefly before the general question of the use of scopolamin and morphin in anesthesia is considered.

PHARMACOLOGIC ACTIONS

Kobert[2] states that scopolamin exists in the optically active and inactive forms. Large doses act like atropin on the pupil, accommodation, skin, heart, lungs, intestines and on all glands, but quite small (therapeutic) doses have a different action; thus the vagus is slightly stimulated, not depressed, and the pulse rate is therefore slowed, and only after large doses is there vagus paralysis. Small doses abolish cerebral excitement, this narcotic action being so strong that the maximal dose at first was placed at 0.5 milligram (1/130 grain) in all countries, but now, unfortunately, and without sufficient reason, this amount has been doubled. Kobert believes this larger dose to be applicable to the optically inactive form alone.

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[1] For a discussion of this point, see The Journal, Dec. 21, 1907, p. 2103.

[2] Pharmakotherapie, Second ed., p. 481.

Kochmann states that small doses stimulate the vasomotor center, with a rise of blood-pressure and little change in the pulse rate; large doses cause a fall of blood-pressure from injury to the excitomotor apparatus in the heart. Moderate doses cause vagus paralysis in the rabbit, but this does not follow the use of even large doses in the dog. He states that scopolamin has no sedative action on the rabbit, while in man and the dog it induces sleep without analgesia.

Normal dogs survived enormous doses of scopolamin, and only those which had been previously injured succumbed. Normal frogs could not be killed by the largest doses.[3] The rabbit exhibits primary paralysis of respiration, as man does, but man suffers no injury from therapeutic doses. Scopolamin is excreted by the kidneys.

These results of Kochmann's are confirmed for the greater part by Kionka (1908), but his results with dogs were slightly different, in that Kionka observed some analgesia and two distinct types of action, some becoming somnolent at once, while others exhibited restlessness, incoordination, hallucinations and sank to sleep gradually.

Kionka also tested the solutions which Kochmann had used two years previously and found no quantitative or qualitative differences in physiologic action, though the optically active had become optically inactive. Kionka also compared the physiologic actions of optically active and inactive scopolamin in freshly prepared solutions and could detect no essential difference between them, but differences were seen in the actions of the same specimen of scopolamin on different individuals of the same species. These differences in individuals were perceptible in the frog, and, becoming more pronounced with the cerebral development of the species, were more marked in the dog than in the rabbit, and, of course, attained their maximum in man.

Ernst perfused the spleen and kidney with solutions of scopolamin of various concentrations, but there were no constant effects on the blood vessels in the series of twenty-two perfusions. Cushny found that levo-rotary hyoscin acts twice as energetically as the racemic form on the terminations of the secretory fibers in the salivary glands and on the inhibitory fibers in the heart, but that they act alike on the central nervous system in man and other mammals, and on the terminations of the motor nerves in the frog, but that they do not act on the central nervous system of the frog even with the largest doses.

The physiologic actions of morphin are so well known that they do not require exhaustive discussion here.

Schneiderlin, Korff and Blos were the earliest advocates of the use of scopolamin and morphin in narcosis, and their statements of the physiologic actions and antagonisms of these two alkaloids have been summarized by Kochmann about as follows:

1. Morphin slows the pulse; scopolamin increases the rate.
2. Morphin slows the respiration and renders it shallow; scopolamin causes it to become deeper and quicker.
3. Morphin paralyzes sensory nerves; scopolamin paralyzes the motor.
4. Morphin induces miosis; scopolamin, mydriasis.
5. Morphin is a vasodilator; scopolamin, a vasoconstrictor.
6. Morphin leaves the secretions unchanged; scopolamin paralyzes them.

The synergistic action in narcosis and the wide-spread *antagonisms of side actions* have been the chief arguments used by Schneiderlin and Blos in support of their claims concerning the value of the combination, but it is hardly necessary to say that the antagonisms are more apparent than real, or that they are in part purely imaginary. Thus, while morphin is, indeed, a miotic and scopolamin a mydriatic, the action of morphin is purely a central one, while the mydriatic action of scopolamin is purely peripheral. As to the paralysis of the sensory endings, it may be said that there is no evidence in the literature of any such action from morphin, and, on the contrary, it is well known that its analgesic action is purely central, while the paralysis of motor endings by available doses of scopolamin occurs only to a very limited extent, and then to the detriment of the heart.

There is no antagonism between scopolamin and morphin on the respiration in the doses often used by Schneiderlin, Korff and Blos. The effects of morphin on the circulation, according to Sollmann,[4] are complicated and variable and of but little importance, as they are pronounced only with very large doses. The effects of scopolamin and morphin on the pulse rate are alike quite as often as they are unlike.

Since the recommendation of scopolamin with morphin was based on such a complete misconception of true conditions, it is not surprising that, after the sacrifice of perhaps thirty lives (and just how many no one can say positively), we are back to almost the identical position in which we should have been but for the unfortunate enthusiasm of the early advocates of this combination; i. e., its use preliminary to inhalation anesthesia—precisely the object which Schneiderlin had in view when he administered the very first dose.

Those who wish to pursue this phase of the question are referred to the papers of Kochmann, Kionka, H. C. Wood, Jr., Cushny, de Stella and others who have studied the pharmacologic actions of these two drugs.

Schneiderlin was led by his observations of the effects of scopolamin on the insane to use scopolamin and morphin for the purpose of reducing to the minimum the amount of chloroform required for anesthesia in the case of a patient suffering from carcinoma of the breast. The results so far exceeded his expectations that he experimented further and found that scopolamin and morphin alone sufficed in some cases for light anesthesia. He gave amounts up to 2.5 milligrams (1/25 grain) of scopolamin and 7 centigrams (1 1/6 grains) of morphin in the space of an hour and fifteen minutes.

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[3] Githens reported a case in which 4/5 of a grain (52 mg.) of scopolamin had been taken at one dose without injury. The results in this case have been widely quoted, but the evidence concerning the actual dose is circumstantial, the patient having taken all that was left after previously using some of the solution. The solution was not sterile and it had been kept standing for some time. Finally, the precise quantity originally present in the bottle is not vouched for by Githens

[4] Text-book of Pharmacology, Second ed., p. 186.

Although he found the effects of scopolamin variable and his observations extended only to some ten cases, he drew rather broad deductions, concluding that scopolamin and morphin are not dangerous; that the unforeseen accidents of chloroform inhalation were thereby avoidable; that the constant attendance of the physician is unnecessary, merely an attendant to be at hand in case the tongue should fall back into the throat and the respiration cease; the condition of the pupils was urged as a guide to the administration of the two drugs, than which, as we have seen, nothing could be more fallacious.

This paper of Schneiderlin's is not readily accessible to the general reader, in this country at least, and it is remarkable how considerately the average critic has dealt with Schneiderlin's reasoning and deductions.

I believe that we should be inclined to consider as little less than reckless one who would pronounce a new anesthetic harmless, because ten patients had survived its administration. Apparently Schneiderlin had no idea of its possibilities for degenerative changes on the internal organs. He even went so far as to advise initial doses of 1 milligram of scopolamin and 3 centigrams of morphin if in haste to operate. It must be said, in justice to Schneiderlin, that he did not pretend to have perfected the technic of scopolamin-morphin anesthesia.

Schneiderlin's truly remarkable announcement was soon followed by observations by other surgeons. Blos took up the investigation within a month of the appearance of Schneiderlin's paper and about two years later he published his results in 105 cases. Blos repeats the fallacious statements made by Schneiderlin concerning the antagonistic actions of the two alkaloids, and, despite one death in his series, which he attributed to an accident that could be avoided thereafter, he commended the method warmly. Blos gave even more morphin than Schneiderlin had done—up to 12 centigrams (2 grains) in two portions—and was more enthusiastic in his praise of the combination. In this connection it is interesting to note that about three years later Blos wrote to de Maurans, stating that he rarely used the method after leaving the hospital.

Korff reported on 80 cases in which he used scopolamin and morphin, employing doses of 1.2 milligrams (1/50 grain) of scopolamin and 3 centigrams (½ grain) of morphin in three portions of 0.4 milligram (1/150 grain) scopolamin and 1 centigram (1/6 grain) morphin each. Korff modified this dose somewhat after about a year, but still adhered to doses that have been abandoned by conservative surgeons. The use of such a dangerous combination could hardly fail to cause a number of deaths, and there was the inevitable reaction, many abandoned the method altogether, while others continued to use it in a modified form.

Disregarding the early methods, which no longer obtain among well-informed surgeons, but which are considered in order to gain a better understanding of the question, we will discuss the use of scopolamin and morphin preliminary to general anesthesia and to induce the so-called twilight sleep in obstetrics.

SURGICAL USES

The principal advantages and disadvantages have been observed by numerous investigators, and it is useless to enumerate these observations in each case. Therefore the opinions of the majority are considered collectively, except when it may be necessary to call attention to opposing views.

ADVANTAGES

The advantages which can be claimed conservatively for scopolamin and morphin in anesthesia may be briefly summarized as follows:

1. It permits economy of chloroform or ether, with the attendant advantages; it reinforces spinal anesthesia.
2. There is lessened postoperative nausea and emesis, with the decreased danger of pneumonia and other side-actions.
3. The stage of excitement is lessened or abolished, and the fear of anesthesia is eliminated largely.
4. The course of anesthesia is rendered smoother and more uniform.
5. There is decreased salivation after ether and a diminution of pneumonia.
6. There is sleep of some hours following operation, with the avoidance of pain which commonly follows operations with chloroform or ether.
7. In addition to those mentioned, there are minor advantages which will be mentioned later.

1. *Economy of Chloroform and Ether.*—It is claimed by a very large majority of observers that scopolamin and morphin effect an economy of chloroform and ether. While this is a matter of prime importance, it is so purely a surgical question that it cannot be considered exhaustively here, but the following citations illustrate the point: Zadro (1909) states that 60 grams (2 ounces) of Billroth's mixture and 100 grams of ether suffice for an operation of an hour, but with 0.5 milligram (1/130 grain) of scopolamin and 1 centigram (1/6 grain) of morphin, 25 grams (5/6 ounce) of Billroth's mixture and 80 grams (2⅔ ounces) of ether, or 120 grams (4 ounces) of ether, suffice. Among others who report economy of ether is Flatau, who states that this economy is not attended with lessened emesis. Schoemaker (1909) reports that he found no marked economy of chloroform or ether, but he admits that these act less injuriously after scopolamin and morphin. If the latter statement is correct, we must conclude that less than usual of chloroform and ether were actually used.

2. *Lessened Nausea and Emesis.*—Blos states that patients take food almost immediately after an operation following the use of scopolamin and morphin, and that recovery is rapid in consequence. Several observers state that patients look fresher and better than after chloroform or ether alone. Hartog (93 cases) states that nearly all patients show an extraordinary good condition after operation following the use of scopolamin and morphin, and Klein remarks that such patients recover quicker and better than after long chloroform narcosis alone. A great majority of observers report that there is less emesis immediately following operations, with scopolamin and morphin, than with chloroform or ether alone.

The disadvantages and dangers of this postoperative emesis do not require detailed discussion here, but, in addition to the fatal pneumonia, which it causes so often, there are many minor disadvantages resulting from it. Flatau says that postoperative emesis is often the cause of hernia as well as hemorrhage. Blos calls attention to the increased viscosity of the blood commonly resulting from emesis and the inability to take water. Korff claims that the ability to take food soon after an operation greatly lessens the danger of hemorrhage, and that many stitches are pulled out during emesis. The ability to take food soon after an operation certainly hastens repair and increases the resistance to infection.

The testimony is conflicting in regard to the actual frequency of emesis after operations following scopolamin and chloroform or ether, but the real benefits of scopolamin and morphin in this respect cannot be shown by tables giving merely the frequency of emesis; the interval before its occurrence is of even greater importance. This is illustrated strikingly in Ries' report. Ries states that emesis occurred in about 60 per cent. of his cases in which chloroform was used after scopolamin and morphin, and in about 36 per cent. of those where ether followed, but only once in the series of 185 major operations did emesis occur within twenty-four hours, and he did not have a single case of pneumonia in the entire series.

As to the actual frequency of emesis after scopolamin and morphin and chloroform or ether, there is little doubt that it is materially decreased in the first twenty-four hours following operation, and, indeed, in the whole period concerned. Schoemaker (1909) states that there was emesis in about 10 per cent. of his 3,000 cases in which scopolamin and morphin were used, which was a marked reduction from that seen when he used chloroform or ether alone.

Flatau claims that emesis is not lessened by small doses of scopolamin and morphin, but the effective doses used by Grimm and by Schoemaker were quite small, 0.5 milligrams of scopolamin, and 1 and 1.5 centigrams of morphin, respectively, and the results obtained by Ries, previously mentioned, were obtained from the use of 0.65 milligram of scopolamin and 1.0 centigram of morphin (1/100 grain scopolamin, 1/6 grain morphin).

The lessened tendency to postoperative pneumonia after scopolamin and morphin with chlorform and ether, owing to lessened emesis and lessened salivary secretion after ether, is shown by the following figures: Boesch states that there were only 0.7 per cent. of cases of postoperative pneumonia following 2,000 operations with scopolamin and morphin and inhalation anesthesia since 1905, and even less than that of late. Zadro gives 0.9 per cent. (it should be 1 per cent.) in 770 cases against 4.8 per cent. with chloroform alone in 1908. He cites the results in Kümmel's clinic, where there were 0.7 per cent. of postoperative pneumonia when scopolamin and morphin were used, against 2.5 per cent. without them. In other clinics as high as 5 per cent. of postoperative pneumonia is reported where scopolamin and morphin are not used.

Grimm reports that there were 43 cases of pneumonia with 18 deaths following 1,754 laparotomies between 1895 and 1905 when scopolamin and morphin were not used, but there were only 6 cases of pneumonia and none fatal in 839 laparotomies where scopolamin and morphin were used before inhalation anesthesia.

If the averages just given are sustained by the observations of other surgeons, there can be little doubt of the beneficial action of scopolamin and morphin in preventing postoperative pneumonia, and in that event we must consider them indispensable, despite a higher immediate mortality than with ether or chloroform alone. The foregoing does not take account of the possibility of fatty degeneration of different organs resulting from scopolamin and morphin, but that probably does not occur with small doses.

3. *Lessened Excitement.*—It is so nearly universally admitted that there is lessened excitement in the early stage of anesthesia following the use of scopolamin and morphin, that the subject may be dismissed with a few words. Sieber states that morphin alone is preferable for the purpose, and Zadro claims that there is no influence on the stage of excitement in the case of alcoholic patients, but this is denied by Grimm. Hartog reports the case of an hysterical patient in whom tonic and clonic convulsions followed the injection of scopolamin and morphin, but these subsided when anesthesia was induced by inhalation.

4. *Anesthesia Smoother.*—Zeller states that no other anesthetic produces such smooth narcosis in severe operations as scopolamin and morphin. Several observers refer to his effect of scopolamin and morphin, and those who work with dogs in laboratory experiments have noted this effect of morphin.

5. *Decreased Saliva.*—The profuse flow of saliva during the inhalation of ether is said to be a prolific source of pneumonia following its aspiration, and of emesis, from the effects of the ether in the saliva swallowed. Scopolamin checks this secretion very effectively, and it may indeed lead to extreme dryness of the mouth and throat difficulty in swallowing, intense thirst and diminished expectoration, which may prove a serious disadvantage.

6. *Long Sleep.*—Many observers mention the prolonged sleep following operations after the use of scopolamin and morphin with chloroform or ether, and state that the patient is thereby spared much suffering, which is otherwise experienced so often. Zeller states that patients often sleep from four to six hours, and Terrier and Desjardins say they may sleep as long as eight or ten hours. While this sleep is usually an advantage, there are conditions under which it may prove distinctly detrimental. Routier denies that postoperative pain is materially lessened by the use of scopolamin and morphin.

7. *Miscellaneous Advantages.*—Various individual observers mention minor advantages in addition to those already discussed, including the following: There is no mask to interfere with asepsis of the face when scopolamin and morphin are used alone for anesthesia (Blos); scopolamin and morphin anesthesia is suitable in cases in which chlorform and ether are unavailable (Dirk and others); but this is hardly borne out by what has been said of the physiologic actions of the two alkaloids and by the experience of Ely, Sexton and others. Penkert says that scopolamin and morphin "twilight sleep" and spinal anesthesia constitute the most humane method of narcosis at our disposal. Grimm is one of the few who advocates the use of scopolamin and morphin for use in general practice. Roith states that the method is more reliable than that with other anesthetics, and not more troublesome.

DISADVANTAGES

The disadvantages of scopolamin and morphin preliminary to chloroform or ether anesthesia may be summarized as follows:

1. They frequently fail to produce the desired effect.
2. They often act injuriously on the respiration and circulation.
3. There are numerous contraindications, of which many are not sufficiently defined.
4. The action is variable with different individuals.
5. They are not suited for general practice.
6. They have caused a number of fatalities.
7. There are several minor disadvantages that will be discussed later.

1. *Failure to Produce Effect.*—Nearly all observers agree that in a fairly large percentage of cases the objects sought are not attained by the use of scopolamin and morphin, whether these objects are limited to the avoidance of the stage of excitement with small doses, such as Kochmann and most observers advise, or the effort is made to economize chloroform or ether greatly, as Korff (1908) still attempts by somewhat larger doses. Twenty-five per cent of failures is probably a fair estimate, but this does not apply to the prevention of postoperative pneumonia, in which, as stated, the results appear to be far better.

2. *Effects on Respiration and Circulation.*—It is well known that morphin depresses the respiration in all doses that produce any perceptible systemic action. The effects of scopolamin are, unfortunately, not so well known, and the effects of the two when combined are even less understood, though there is considerable evidence that their synergistic action in narcosis is sometimes extraordinary, in that their combined action is then much greater than the sum of their separate actions would be.

This is not a wholly anomalous condition, though it is one which is frequently overlooked. Gottlieb and Eeckhout's results with opium furnish us with an example of this peculiar synergistic action. They found that tincture of opium acts with more energy than can be accounted for by the potency of the separate alkaloids which it contains. Honigmann states that the action of a mixture of chloroform and ether is sometimes far greater than the sum of the action of the two acting separately. Wholly analogous to this is the action of atropin in antagonizing pilocarpin. Magnus states that 250 times as much atropin is required to produce stimulation when it acts alone as that required to overcome the depression from pilocarpin.

This remarkable synergy of actions has been observed on precisely those structures. i. e., those of the nervous system, in which we would expect the greater variation in reaction because of their highly specialized character, and it is with narcotics—even the identical narcotic that we have under consideration—that these peculiarities have been observed.

We are familiar with wide variations of actions, or idiosyncrasies, toward morphin, and it is possible that we are to become equally familiar with idosyncrasies toward scopolamin. Scopolamin in large doses paralyzes the respiration, and it is apparent from the testimony of many clinical observers in cases in which death followed the use of the mixture, that the synergistic action of scopolamin and morphin is occasionally exerted on the respiratory center in a very remarkable way. Unfortunately, we do not know the precise conditions which call forth this unusual synergistic action, but we do know that whatever tends to depress the respiratory center favors this unfortunate reaction. The respiratory depression may be direct, or it may be caused indirectly through anemia, general weakness or extremes of life.

The evidence is irrefutable that scopolamin and morphin may cause death from paralysis of respiration—a paralysis against which artificial respiration and all means of stimulation are ineffective.

Sieber (1908) stated that Hartog alone had mentioned the lasting increased pulse rate after scopolamin and morphin, but the phenomenon is mentioned frequently thereafter, and its occurrence is in accordance with de Stella's statement that toxic doses of scopolamin increase the pulse rate, and furthermore, that toxic symptoms appear and disappear rapidly. Any considerable increase in the pulse rate after scopolamin and morphin must be considered an untoward symptom unless it can be accounted for satisfactorily.

Sieber mentions a case in which the pulse rate was 80 previous to the injection of a small dose of scopolamin and morphin, but in one hour the rate was 160. The heart, lungs and kidneys were apparently sound. This case of Sieber's must be considered as very unusual, and I am not aware of any case in which a dose not exceeding 0.5 milligram (1/130 grain) of scopolamin and 1 centigram (1/6 grain) of morphin has caused the death of a patient in fairly good condition and with sound organs, but the death reported by Ely very nearly fulfills these conditions. His patient was reported to have been in good general condition, but succumbed two hours after the administration of 1/100 grain scopolamin and ⅛ grain morphin (0.65 mg. scopolamin; 0.8 cg. morphin). There is no better authenticated cause of death from a narcotic than this one.

3 *Contraindications.*—Foremost, then, among the contraindications for the use of scopolamin and morphin are to be placed all conditions whereby the respiratory center is depressed, or is likely to be injured directly through prolonged anesthesia, or indirectly through the circulation by shock, hemorrhage or other cause. They are certainly contraindicated in all severe cardiac diseases and other conditions which interfere with the circulation. They are available for operations for simple goiter, but nearly all authorities agree that they are contraindicated in the presence of Graves' disease, which is to be inferred from what has been said. They are contraindicated in operations about the throat and mouth, since the prolonged sleep and interference with expectoration favor the aspiration of the blood. One death has been attributed partly to this, pneumonia, due to aspiration of blood, being the immediate cause of death.

The question of special indications and of contraindications for scopolamin and morphin has probably caused more disagreement than any other in connection with the subject of their use. Sick thinks there are no contraindications, while Sieber declares that there are no indications for their use. Sieber closes his article with the following exclamation: *"Also Weg bei der Narkose mit diesem unberechenbaren, meist nutzlosen, gefährlichen Gifte"* ("Away with narcosis by this uncertain, mostly useless dangerous poison").

Much of the controversy could have been avoided had greater attention been paid in the beginning to the physiologic actions of scopolamin and of morphin, and of the mixture acting as a unit.

4. *Variable Action.*—That the action of scopolamin and morphin is variable with different individuals follows naturally from what has been said, and it is impossible, of course, to foresee all of the conditions in man which will cause a greater or less deviation from the usual effects, and when a natural idiosyncrasy is intensified by disease or untoward conditions even small doses of scopolamin and morphin may prove fatal, as in the cases reported by Toth, Ely, Sexton and others.

These individual differences in reaction varying from no perceptible action in some cases to a fatal intoxication in others with precisely similar doses, constitute one of the greatest disadvantages of the use of scopolamin and morphin. Usually, however, the same patient reacts similarly at different times, but Hotz maintains that the same patient reacts differently at different times, and the possibility of this is precisely what is to be expected in view of the disturbances of the respiration and circulation which may arise, and on which the untoward results depend.

5. *General Practice.*—The method is not usually considered as suited for general practice because of the constant attention required until the action has finally worn off, as the untoward symptoms may not arise until some time after the operation. It must be considered as unsafe to leave a patient without surgical care so long as sleep continues. There is probably little danger from small doses of scopolamin and morphin for patients whose general condition is good, and who show no serious effects from the operation, but the cautious surgeon will remain within call until the patient awakens.

6. *Fatalities.*—The ultimate fate of scopolamin and morphin in anesthesia must depend largely on their relative safety as compared with other agents, particularly chloroform and ether. While this is a surgical question for the most part, it must be considered with reference to the physiologic actions of these agents if we are to arrive at a correct estimate of the value of the method, for in fatal surgical operations there are so many factors involved that it is often impossible to determine the true cause of death. But when we see a series of deaths in which the clinical observations agree with what we know of the actions of the agents in question, the evidence is certainly very much stronger than it would be if the clinical observations did not agree with those actions.

H. C. Wood, Jr., studied the cause of death in 23 cases in which scopolamin and morphin had been used, and he concluded that at least 9 of those deaths must be attributed to the scopolamin and morphin, the death rate being about 1 to 250 narcoses by this means. Roith collected statistics of 18 deaths in 4,000 cases of scopolamin and morphin narcosis, but he does not agree that scopolamin and morphin should be blamed for these deaths. De Maurans attributed 22 deaths to these agents up to November, 1905. Viron and Morel (1906) noted 25 deaths in 2,000 cases collected from the literature.

With the methods now in vogue with the more conservative surgeons, who use only small doses of scopolamin and morphin in connection with other anesthetics, the death rate is very much lower than the figures just given would indicate, but there is no reason to suppose that better results can be obtained when scopolamin and morphin alone are relied on to induce the anesthesia.

These figures are given by way of illustration of the question of scopolamin and morphin anesthesia, and are not intended as a complete statistical study of the subject, and when statistics are considered a sharp distinction should be made between those cases in which death follows large doses of scopolamin and morphin, intended to replace chloroform or ether wholly or chiefly, and those in which only small doses of scopolamin and morphin are used for the purpose of securing freedom from excitement, lessened emesis, smoother anesthesia and freedom from some of the more annoying minor symptoms. In the light of what has been said of the pharmacology of morphin and scopolamin, it is also necessary to distinguish between the results obtained by those who use the method for all cases and those in which there is careful selection of suitable cases.

The argument has been advanced. that certain deaths following the use of scopolamin and morphin, particularly those reported by Israels, were not due to scopolamin, because there was marked fatty cardiac degeneration, but de Stella concluded that scopolamin causes widespread fatty degeneration, and Israels said he had never seen fatty degeneration from such small amounts of chloroform as had been used in those cases. Sexton's patient died within an hour and fifteen minutes of the injection of 1/6 grain of morphin (1 cg.) and 1/100 grain of scopolamin (0.65 mg.), with the usual symptoms of scopolamin intoxication, paralysis of respiration and rapid pulse. Rigidity of the muscles prevented artificial respiration in this case, but in the light of experience in other similar cases, it would, in all probability, have done no good.

7. *Minor Disadvantages.*—Among the minor disadvantages which have been mentioned by different investigators are the following: When the morphin and scopolamin are once injected they are wholly beyond control. One surgeon writes of his emotions at seeing his patient die while he and his assistants stood by helpless to counteract the effects of the drugs they had administered.

Every additional narcotic complicates the anesthesia.

Scopolamin does not cause muscular relaxation, a disadvantage, when used with spinal anesthesia particularly, and we have seen that muscular spasm interfered with artificial respiration in one fatal case at least.

The prolonged sleep may prove a disadvantage, as already mentioned. Hirsch mentions its interference with expectoration after operations about the mouth, and it is said that the prolonged sleep and the attendant respiratory depression may favor pulmonary edema.

Intense thirst, dryness of the mouth and throat and the difficulty in swallowing are sometimes complained of by patients.

Different investigators have attempted to explain many of the accidents which occurred early in the history of scopolamin and morphin anesthesia, on the ground that the drugs employed were impure or that the solutions underwent changes whereby toxic substances were formed.

Kionka maintains that apoatropin is the only impurity which could be concerned in the increased toxicity of the scopolamin, but he had never been able to detect this impurity in any of the specimens of scopolamin examined, hence he thought it must be extremely seldom that this impurity could be present. Apoatropin may be detected by Kessel's method. Potassium permanganate causes a brown precipitate when one part of apoatropin is present in 20,000 parts of the solution. Morphin and many other alkaloids give this reaction, hence it is not applicable to the mixture of scopolamin and morphin. The Swiss Pharmacopeia (1907) does not mention this substance as an impurity in scopolamin. Kobert attributed the death of a man who had scopolamin to apoatropin, which was said to be present as an impurity.

While solutions of scopolamin do undergo some unimportant physical changes as previously mentioned, it is probable that sterile solutions do not undergo any essential change in the course of a few months. Ries was unable to observe any difference between the effects of those solutions which had been freshly prepared and those which had been kept for some weeks. This agrees with the results of Kionka's experiments with freshly prepared, and old, solutions of scopolamin. Hotz states that milk sugar is said to prevent the deterioration of scopolamin solutions. The physical changes observed are said to be probably due to the alkali of the glass.

(To be concluded in the next issue. The bibliography of this article will be found at the end of the concluding portion.)

CORN AND PELLAGRA

A CONTRIBUTION TO OUR KNOWLEDGE OF THEIR RELATION AS PROBABLE CAUSE AND EFFECT *

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The recent conference held at Columbia, S. C., under the auspices of the State Board of Health of that commonwealth emphasizes and confirms the opinion that in some unknown way there is a connection between our well-known cereal and the disease in question. Very many, perhaps a majority of those who took part in the discussion and in the papers read as reported in The Journal[1] subscribed to the statement of Dr. Sandwith of London, that "it is not good maize or good maize flour which produces pellagra; the disease requires for its production the habitual use of damaged maize in some form."

Respecting this disease and its cause two statements can be made with great confidence in their accuracy:

1. Where corn is not eaten, pellagra does not exist.
2. The eating of good corn or corn-meal will not produce pellagra.

The latter proposition is self-evident. Otherwise the whole population of the great corn belt of the world comprised in these central Western states would be victims of this plague. On the contrary, the food-value of this staple cereal is without question and its healthfulness is attested by millions of the best-fed people of the world.

There need be no fear on the part of agriculturists and dealers in this grain that there is a menace to their occupation by the growing prevalence in this country of a disease which has been known in other corn-growing sections of the world for nearly two centuries.

The only wonder is that it did not appear at an earlier time in our history or that it remained so long unrecognized. In my judgment, however, both these facts are capable of explanation. It is recognized that no class of people is exempt from possible attack, but it is evident that the poorer people of the South and the Atlantic border states are victims in greater numbers than are the same classes in other parts of the country.

This fact is also capable of explanation and affords strong presumptive evidence that damaged corn-meal is the causative factor in the pellagrous attack.

1. Rich people may get damaged meal in places where it is kept in stock. Such use for them would be accidental and not habitual, as it is with the poor in the same locality.
2. Damaged corn-meal is sent to the South and the South Atlantic border of our country for the express purpose of finding a market. It would find no market in the North and any use of such meal would be purely accidental. No dealer would dare to offer to consumers in this or other corn states a meal which would not stand the closest inspection. Europe and the South are the markets for such stuff and thither it goes.

In the hope that some light may be thrown on this traffic, and incidentally on the infection under consideration, allow me to quote from a letter written by a friend who has been a dealer in cereal products for many years and who is fully informed on all phases of the foreign and domestic trade in grain. It will be apparent that, while there are tricks in all trades, there are also honest men in the grain business whose consciences have not been seared by the virus of ill-gotten gain so that they utterly deny personal responsibility in a brother's distress. The letter follows:

> As you know I have been connected with the grain business, in some branch or other, since the sixties. I have handled corn at all seasons of the year, and in varying quantities, but have never had trouble with corn shipments until within about the last half dozen years.
>
> There are many farmers who make no effort to cure the crop sufficiently so that it may bear transportation. They force it on the market as early as possible, as the more moisture it contains the heavier it will weigh. What is the result?
>
> Before it can reach its destination, cool and sweet, as the shipping contracts read, it has become heated. If it becomes too bad to use the consignee will refuse it, in which case it is rushed to the nearest terminal and put through a dryer. There are times when these dryers must work day and night, for seven days in the week, to keep the constantly arriving corn from total destruction. As fast as it is dried and cooled it is disposed of. Where does it go? I do not know to a certainty. I formerly thought it went to the distilleries, and a portion of it may go there, but I fear much of it is sold to the mills at a discount of from 10 to 50 per cent. Some of it is exported after mixing with good corn. The best is selected and made into meal, and, costing so much less, can be sold at a very attractive price to those whose means are limited.
>
> There are very many people who look more at cost than quality and eventually pay the penalty. The exporters also reap advantage because the poorer Europeans, especially the Italians, know no better, and they, too, pay the penalty.
>
> I know positively that corn has reached European ports badly out of condition. I remember that, some four years ago, nearly every shipment, from November until March, arrived at destination out of condition. The following year it was not so bad, yet there was enough. Every year during the germinating period—the months of April and May—there is plenty of it unless great care is taken. From this it would appear that our pure food inspectors should investigate and find out where the poisonous stuff goes, and stop the killing of people for money. It will no doubt be very hard on some dealer occasionally to have his entire cargo condemned and destroyed, but the practice of shelling and shipping corn before it is properly cured should be broken up root and branch.
>
> The Atlantic and Gulf coasts are the greatest sufferers from pellagra, and they get their supply of meal from the North, as the Southern states raise but little corn. Philadelphia, Baltimore, Buffalo, Cleveland and Columbus, Ohio, have very extensive driers and large mills and the South is an excellent customer. The temptation of unusual profits is great; no doubt advantage is taken of the opportunity, and the result is death and destruction to the poor and the ignorant who are unable to help themselves.
>
> I have learned that the distillers do not use much, if any, spoiled corn. It will not make good spirits. It does not make good fertilizer. At least it would not be profitable to use it for that purpose. The real profit comes through mixture with good grain. For example, a cargo of 100,000 bushels, costing $70,000, mixed with 10,000 bushels at a discount of 20 cents, would pay a profit of $2,000 over and above the legitimate margin. The millers near the terminals are not blind to this opportunity, and will, I fear, take it until restrained by the strong arm of the law. This inferior corn in large quantities is begging for an outlet, and the great territory along the Atlantic coast is hungry for provisions and will take anything so it is cheap. Inferior meal fills the bill.

That this inference is fair is strengthened by the fact that the last half of this decade, the time in which we have had most trouble with spoiled corn, is the very period in which pellagra has made such strides as to draw the attention of the whole world.[2]

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* Read at the meeting of the Northwestern Ohio District Medical Association, at Bellefontaine, O., Dec. 8-9, 1909.

[1] Nov. 13, 1909, liii, 1659

[2] This letter was written by Mr. Thomas B. Marshall, ex-president of the Ohio Grain Dealers' Association, a man of the highest character, whose motives in making these statements can be attributed only to a high sense of Christian responsibility and a sincere desire to aid the medical profession in its most altruistic work of tracing a possible connection between one phase of the grain trade and the disease in question.

Whether the inference drawn in this letter be correct or not, the facts should be easily accessible to the commission appointed by the Surgeon-General of the Public Health and Marine-Hospital Service, and if these facts sustain the charge, steps should be taken to stop this traffic in spoiled corn.

It is a mistake to suppose that any exposure of this kind will hurt legitimate trade, for it is expressly stated that the eating of good corn-meal will not produce pellagra.

It is said that there are already about 5,000 victims of the disease, and many thousands more will be added to the list if the traffic continues unabated. What a commentary on those blind leaders of the blind who oppose now, and ever will oppose, the formation of a national health bureau and almost every form of national health legislation!

It is worthy of remark that the policy of purchasing supplies for public institutions by the method of competitive bidding is one fraught with great danger. It supplies a powerful motive for fraud and evasion of the Food and Drugs Act.

No system will probably be devised that will circumvent the schemes of the designing, but to purchase in the open market as need requires is a safer policy than that which really offers a premium for the delivery of inferior (because cheaper) foodstuffs or other material required by the wards of the state in her penal, reformatory, educational or other institutions.

It is possible that to this policy may be traced the comparatively large number of pellagrins found in asylums and schools. At a Baptist orphanage at Nashville, Tenn., there were 17 cases, and the physician in charge says that there was every evidence that the disease was contracted in the institution. It is true that another asylum not far away used the same grade of meal made by the same miller and no cases developed. The same was said and proved during the preserved meat controversy, the outcome of the Spanish-American War. Thousands of soldiers used the stuff and survived the ordeal, but there can be no doubt that other thousands were victims to the vicious policy of the government of giving out contracts for army supplies to the lowest bidder.

With equal truthfulness and propriety it can be said that eternal vigilance is the price of liberty and of good food. The public looks to us for protection, and it is hoped that the hint herein contained may lead to a solution of a perplexing problem.

923 North Main Street.

PRIMARY SARCOMA OF THE SPLEEN

CAMILLUS BUSH, M.D.
SAN FRANCISCO

Why neoplasms of the spleen are so rare has never been satisfactorily explained, and doubtless never will be until we know the causes of tumors in general. We might speculate on the protected position of the organ, its freedom from irritation of any sort, such as comes to most other organs by the nature of both their position and work. The spleen escapes the unpleasant results of all but the most wide-spread calamities of the body, such as the septicemias and toxemias. The damage it sustains is commonly that carried to it by the blood-current.

Speculation even is not so easy when it comes to accounting for the rarity of its metastatic invasion in cases of the most extensive dissemination of tumor tissue. Its lymphatic supply is abundant enough, as is its blood-supply, to expose it to lodgment of circulating cells. If, however, we recognize the Hadley exposition of the spread of cancer as along fascial planes in its peripheral advance, we may again think of the sequestered position of the spleen and its lack of broad ligamentous attachment, or continuity of its coverings with surrounding fascias.

However these things be, primary neoplasms of the spleen are of great rarity. The consideration of such tumors narrows practically to a consideration of sarcoma, as the only other tumor reported has been fibroma, and that only once or twice as a growth from the capsule. Most reporters agree that there never has been reported a convincing case of carcinoma of the spleen.

In 1904 Jepson and Albert[1] described a case of primary sarcoma of the spleen, the patient being treated by splenectomy, and well ten months later. In that article they reviewed the literature and collected the cases of primary sarcoma of the spleen. Since their contribution one case has come to my knowledge, that of a patient of Dr. Willy Meyer, in 1906, treated by splenectomy and dead in a few weeks from recurrence.

In all, there have been 24 undoubted cases of primary sarcoma of the spleen. Eleven of these were discovered at autopsy. Ten other cases possibly coming in this category are autopsy cases, and are so ambiguously described as to be necessarily discarded. This leaves 13 cases treated by splenectomy. Four patients died as an immediate result of the operation. Of the 9 survivors, 4 died of recurrence and 1 was lost sight of. Two remained well after several years, being cured. The last 2 were living at the time of the Jepson and Albert report, but have not been reported on since. It may be, then, that 4 of the 13 were cured.

Sarcoma may arise from the spleen in three ways: from the capsule and trabeculæ, giving rise to fibrosarcoma; from the lymphoid structure, causing lymphosarcoma; and from the endothelial cells along the trabeculæ, giving rise to large round-celled sarcoma. No instances of angiosarcoma have been seen.

A study of the reported cases does not suggest any difference in malignancy of the various forms as the cases that recurred included all three varieties. Lymphosarcoma, having a number equaling the other two forms combined, was naturally responsible for most of the cases that recurred. The rapidity of recurrence does not throw any light on the comparative malignancy of the three varieties. As to the diagnosis of primary sarcoma of the spleen, little is to be said. It must be made by exclusion. I think it should usually be made with some probability. The pain will bring the patient, and enlargement of the spleen will be found. Then comes the routine exclusion of the other forms of splenic enlargement—a matter of no great difficulty, as a rule. Splenectomy, of course, is the treatment, and the outlook is poor enough unless the growth be very young.

To the short list of cases already reported I take this opportunity to make an addition.

Patient.—On March 25, 1908, I saw in consultation with Dr. Herbert Moffitt, at St. Luke's Hospital, John B., aged 48, a cattleman from Southern California. He had entered the hospital complaining of pain in the left side.

History.—The family history was unimportant. None of the patient's people had had tuberculosis or cancer. He had living, healthy brothers and sisters. In his past history were mumps, measles, and malaria before his ninth year. Since that time he had been perfectly healthy. For many years he had had a slight digestive disturbance, characterized by flatulency after intemperate eating. He denied syphilis. On an average he had taken one drink of whisky a day for some years. Three years before he fell heavily on his left back, striking in the splenic region, across a beam. After this, for six weeks he suffered pain, which gradually disappeared. This accident did not prevent his working. Turning on the left side relieved the pain to a great extent. He said that the pain was similar to that which he had had since the onset of the present illness.

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[1] Jepson, W., and Albert, F.: Primary Sarcoma of the Spleen and Its Treatment by Splenectomy, Ann. Surg., July, 1904.

Present Illness.—This began eight weeks before admission, with pain in the left side, first noticed after a long railroad journey. This pain gradually increased in intensity and was unrelieved by changes in posture. The patient, however, continued riding horseback up to the time he started for San Francisco. Associated with the pain there had been a little flatulent indigestion and a tendency to constipation. The patient had lost in weight about twenty pounds. There had been no urinary disturbance, and the urine, examined from time to time, had been reported normal. No hemorrhoids.

Examination.—This showed a stout, healthy-looking man of good color, not confined to bed. There was a hard, slightly irregular tumor in the left hypochondrium, emerging from under the ribs toward the navel on deep breathing. It was superficial but not tender, filled the upper half of the flank, but had its lower border higher than the level of the umbilicus. The area of splenic dulness was greatly increased. When inflated, the stomach lay to its right. The tympany of the colon reached the edge of the tumor below, but did not pass in front of it. The mass was evidently the spleen. Physical examination was otherwise negative. No glands were to be felt. The liver did not exceed its normal size. The rectal examination was negative. The urine was normal. There were no evidence of syphilis or tuberculosis. The leucocyte count was 8,900; the polynuclear leucocytes 75 per cent. There were no malarial parasites and no anemia. The blood-picture was the ordinary one. The temperature ran a normal course. There was nothing in the stools to suggest loss of pancreatic function, neither was there blood or pus. The examination for occult blood was negative. The stomach content showed the presence of free hydrochloric acid, many staphylococci, and long rod-shaped bacilli, a few large squamous cells, and some cuboidal cells.

Course of Disease.—It was judged that the condition was probably a primary splenic tumor, and exploration was decided on for the following Monday, the day of examination being Wednesday. On Friday afternoon he took a rather long ride in the street-cars, and returned in the evening with more than his usual pain, and went to bed in his room. During the night the nurse heard a fall in his room, and when she ran in, found him lying on the floor in a faint. He quickly revived, however, and was put back to bed. The pulse was noted as quick at this time. During the remainder of the night he was restless and ill, but did not vomit. The house officer in charge was not called. The patient was not seen until 9 a. m., when Dr. Moffitt and I visited his room. It was immediately apparent that he was in collapse. He was restless, thirsty, with pinched face, the pulse 140 to 150 and thready; respiration 40. The intense cyanosis was striking. The abdomen was held quiet, the respiration being costal; there was some distention. The left side was held rigid, was tender and presented movable dulness. It was evident that there had been some grave accident, probably a rupture of the spleen, as the picture was one of hemorrhage rather than perforation of a viscus. The patient was immediately given salt solution by rectum and under the skin. An hour afterward, having rallied a little, he was taken to the operating-room. Leucocyte count was 27,800; polynuclear leucocytes, 90 per cent.

Operations.—The abdomen was opened by an incision to the outer border of the left rectus. Free blood ran out as soon as the peritoneum was incised. The enlarged irregular spleen presented in the wound. There were one or two whitish bosses on its surface, suggesting sarcoma. On the mesial surface of the organ was a superficial rupture into the splenic tissue from which blood was rapidly oozing. At the splenic flexure was an extravasation of blood between the folds of the colonic mesentery, but apparently no thrombosis. The blood was hastily sponged out and a tampon of iodoformized gauze placed to the rent in the spleen. The wound was closed about the gauze with interrupted sutures through peritoneum and muscles. The skin was closed separately. No lesion other than the splenic was discovered in the abdomen, though the examination was hasty. During the following week the patient gradually recovered strength and the hemoglobin rose to 60 per cent. The gauze to the spleen was not touched. There was considerable ooze. Six days after the first operation the splenectomy was performed under ether anesthesia. The previous wound was reopened; it was healing *per primam intentionem.* Light adhesions were separated and the gauze tampon removed, followed by considerable hemorrhage from spleen. The incision was enlarged into a T-shaped one by cutting directly across the muscles, toward the flank. Intestines, stomach, and omentum were packed off, the spleen delivered after freeing a few adhesions, the splenic ligament clamped from outside the spleen, then the pedicle clamped from inside, and the organ removed. The vessels were not enlarged. The stump was transfixed with silk ligatures and tied. There was some oozing from the tail of the pancreas, which had been adherent to the spleen. A cigarette drain was placed to this point. The diaphragm was left lax and wrinkled. The wound was closed in layers around the small drain.

Postoperative History.—The patient left the table in good condition. After about four hours he suddenly collapsed, with cyanosis, sweating, rapid respiration, scarcely countable pulse. There was tympany high into the left axilla. The heart was displaced toward the right side, and as the abdomen was negative to examination, the condition was judged to be one of acute dilatation of the colon or stomach due to the removal of the large spleen and the readjustment of the neighboring viscera. The patient slowly responded to infusion and caffein and strychnin with morphin. During the ensuing days the improvement was steady. The hemoglobin rose to 50 per cent., the pulse and temperature remained normal but he had some pain in the region of the wound, which was thought to be due to the drain. Any attempt to remove the drain was accompanied by extreme sickening pain, referred to the pancreatic region. Almost daily attempts were made to remove it, but without success, until finally, after three weeks, under nitrous oxid anesthesia, the gauze was forcibly dragged out. Meanwhile the skin stitches had been removed and the wound had healed *per primam intentionem,* except for the sinus of the drain. The leucocytes, which on the day following operation were 28,000 (polymorphonuclears 90 per cent.), steadily declined to 10,000 three weeks later with 80 per cent. polymorphonuclears. A few eosinophiles continued to be present. For a time the urine contained a trace of diacetic acid. There were no other peculiarities in the blood-picture, except that of stubborn depression of the hemoglobin, 60 per cent. About five weeks after the operation the pain, which had persisted to a moderate extent, became very intense. At the same time the liver rapidly enlarged, coming down almost to a level with the navel. The pain was mostly referred to the liver. The patient stopped gaining strength and had to be given opiates. Recurrence seemed sure in liver. The patient was put on *x*-ray exposures and Coley's artificial serum, with some benefit. The liver gradually decreased, and the patient again gained strength till he returned to his home, in the southern part of the state. Letters from Dr. Petit of Visalia, the patient's home physician, kept me apprised of his further condition. He never fully regained his strength, but after three or four months began to lose steadily and have increased pain. The liver enlargement had disappeared, but a mass had formed in the left hypochondrium. This increased in size till his death, six months after operation. Before he died the stomach became intolerant, and the vomitus contained blood. Old blood appeared in the stools.

PATHOLOGIC REPORT

The removed spleen weighed 2 pounds and 14 ounces. It was somewhat irregular, with two low bosses on its anterior border. These looked whitish as compared with the remainder of the purple splenic surface. When sectioned the spleen contained a number of separate nodules of new growths, the largest about 7 cm. in diameter, the smallest 3 cm. across. The nodules were fairly well circumscribed, the smaller being grayish and translucent, the largest whitish and necrotic in the centers. There was hemorrhage into the largest nodule. In no place had the growth invaded the capsule. The rupture was in healthy tissue, was superficial, and apparently caused by increased intrasplenic tension, possibly from the hemorrhage into the largest tumor mass.

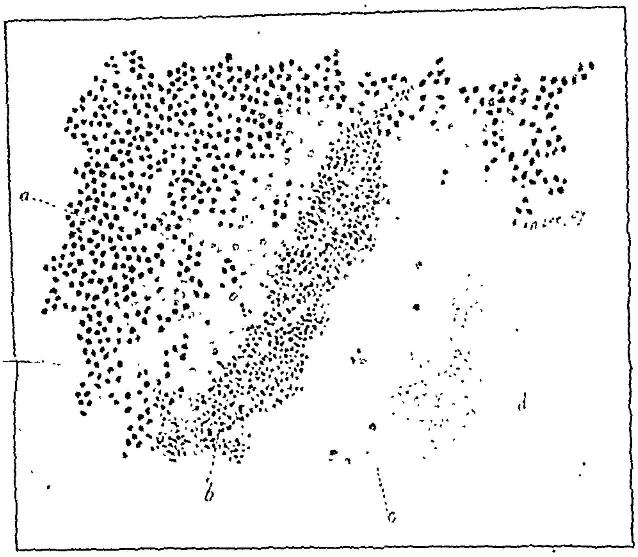

Fig. 1.—Primary sarcoma of spl ells; B, remnant of splenic tissue; C, area of hemorrhage. (Zeiss ocular 12, B. and L., objective ⅔.)

The report of Dr. Ophüls, the pathologist, was "large-celled sarcoma." In view of the absolutely negative examinations of the abdomen at the two operations, it was judged that the condition was certainly one of primary sarcoma of the spleen. Death was due to recurrence in the region of the wound. Fortunately, I was permitted to perform an autopsy, which I think confirmed the diagnosis. The report of the autopsy follows:

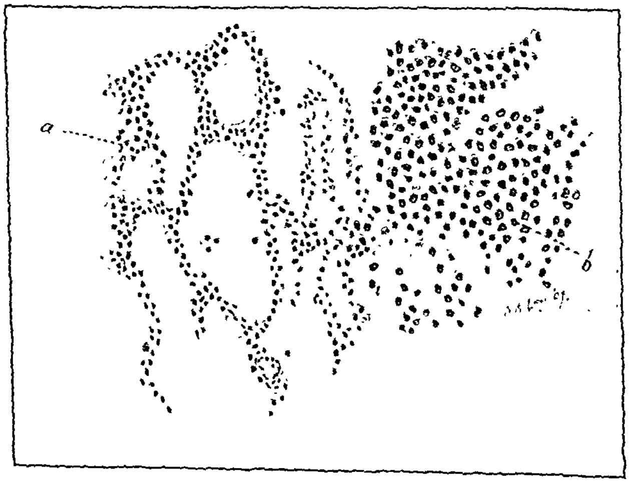

Fig. 2.—Metastases in lung; A, lung tissue; B, sarcomatous cells. (Zeiss ocular 18, B. and L., objective ⅔.)

"*Sept. 7, 1909:* Without giving the details of the examination, the findings were as follows:

"Omentum adherent to old scar in epigastrium. Together the pleural cavities contain about a liter of slightly turbid brownish fluid. The lungs contain, evenly scattered through them, a small number of whitish nodules the size of small peas. The liver, which, it will be remembered, was greatly enlarged at one time, is hypertrophied, but presents a normal appearance on surface and section (measures 22 by 35 by 10 cm.) and reaches only to costal margin. No evidence of metastases. The splenic flexure, descending colon and sigmoid are imbedded in a mass of dense adhesions extending along the whole of the left flank.

"There is a cystic mass the size of a large grape-fruit occupying the splenic area. To it are adherent, above the diaphragm, on the right, the cardia and posterior wall of the stomach and the tail of the pancreas. The upper pole of the kidney and suprarenal are embedded in the mass.

"When the diaphragm is stripped off it ruptures easily, suggesting that at a previous time there might have been a perforation into the pleural cavity. The stomach is reddened and injected with many ecchymotic spots, each measuring about 1 mm. The tumor mass itself measures, roughly, 13 by 15 to 10 cm. The surface is covered with uneven, irregular-sized nodules, all of which, except the smaller ones, show fluctuation. The posterior surface of mass is smooth except for small, irregular, hard, opaque nodules, similar in all respects to those found in the lungs. There are numerous enlarged mesenteric glands averaging the size of millet seed. On the surface of the bowel, especially of the cecum, seemingly in the peritoneal covering, are small opaque plaques the size of a pin-head.

"On sectioning the tumor mass the cystic areas are found to be filled with grumous, bloody, broken-down tumor material. The left kidney is not invaded by the growth, but the suprarenal body is apparently completely replaced by the tumor which has broken into its capsule on the mesial surface.

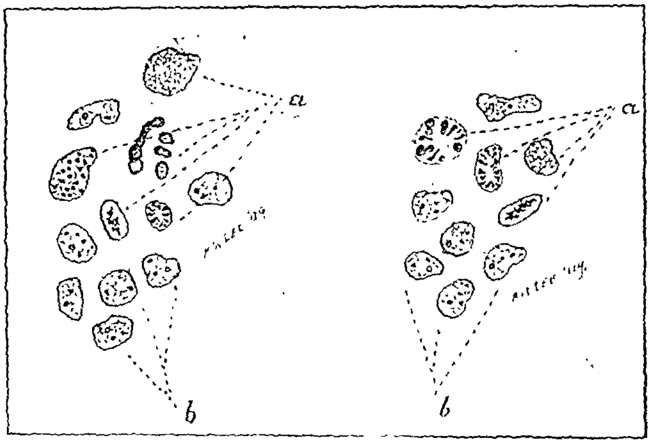

Fig. 3.—Sarcomatous cells; on the left, *from the lung*; on the right, from the *spleen*; A, mitotic; B, cells in stage of rest. (Leitz ocular 4, objective 1/12.)

"The tail of the pancreas is partly replaced by the growth which has also encroached on the wall of the stomach.

"The microscopic sections made from the various tissues show that there were recurrences in the lungs and that the large recurrence involving stomach, pancreas, and suprarenal, possessed the same cells and structure as did the original splenic tumor. The liver sections showed a normal organ."

In review then: we have a strong man developing a sarcoma of the spleen, some three years after a suggestive injury. The growth was rapid and accompanied by pain, and led to a rupture of the spleen. The removal of the spleen was followed by anemia of more than moderate grade, though the presence of a malignant tumor masks the value of this observation; by a transient leucocytosis, but by no lymphocytosis such as was described by Jerome Meyers;[2] by hypertrophy of the liver reaching its maximum five weeks after operation and gradually subsiding to time of death, and finally by recurrence of the growth and death in six months. Autopsy showed that metastasis had occurred in three ways: (1) through the blood-stream to both lungs as the nodules were scattered uniformly; (2) through the lymphatics to neighboring glands and tissues; (3) probably by direct implantation from cells in the free cavity falling on the peritoneum of the bowel.

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[2] Meyers, Jerome: A Study of the Blood after Splenectomy Following Trauma, THE JOURNAL A. M. A., April 17, 1909, lii, 1231.

A point that I wish to mention again is the occurrence of intense cyanosis after the rupture of the spleen. It is an occurrence that we see in lesions of the upper abdominal organs, such as perforation of a gastric ulcer (especially of lesser curvature) and acute pancreatic disease (as mentioned by Halsted).

The significance of the cyanosis has never been explained.

Appended is the report of the microscopist.

REPORT OF MICROSCOPIC EXAMINATION BY DR. LEE

"The following study is based on observations of a neoplasm, primarily located in the spleen and followed by metastasis. The new growth was undoubtedly a sarcoma. While a number of organs were invaded by the neoplasmic cells, the spleen and lung foci can be taken as types of their morphologic and tinctorial characteristics.

"The splenic tissue is, in the main, displaced by cells quite different from those seen in the normal organ. Commonly, these cells are at the very least three times the diameter of an erythrocyte, although it is no unusual finding to see them running from seven to nine times the breadth of a red blood-corpuscle, especially if in the stage of division (Fig. 1a). The cells in the stage of rest have large oval or round nuclei, nearly centrally placed. Their linen filaments are wide-meshed, and, naturally, take the hematoxylin but faintly. At the nodal points, however, well-marked chromatin bodies appear. The nucleolus is generally found near the periphery of the nucleus (See Figs. 3 and 4, b, b). Their protoplasm is rather scanty; faintly reactive to eosin, and of polygonal outline. Comparatively speaking, the sarcomatous cells in the resting stage are scarce. It would not be far from truth to say that for every three of them at least one undergoing mitosis exists. Most of these mitotic figures represent the various epochs in karyokinesis, although direct division appears to occur in rare instances. Some of the karyokinetic steps are illustrated in Figures 3 and 4, a, a.

"Comparing the individual neoplasmic cells in the spleen and the lung, the same type prevails, in respect to both size and minute anatomy. Perhaps division-forms are more plentiful in the pneumonic metastatic areas than in the parent tumor in the spleen, although this was by no means irrefutably determined.

"In the spleen large areas of degeneration are met, appearing here in the midst of the new growth, and there in the splenic pulp. Nevertheless, as a rule, both the spleen and the neoplasm contribute about equally to the degenerative fields (Fig. 1, c). In the specimens examined that were taken from the lung, degeneration is certainly not as common as in similar quantitative areas from the spleen.

"In the spleen large and small diffuse hemorrhages form prominent features. In the lungs they are not so frequent, or so extensive. New-formed blood-vessels are extremely rare. The diffuse hemorrhage in the spleen is shown in Figure 1, d.

"The suprarenal gland likewise shows a metastatic focus, but its component cells do not differ from those found in the spleen and lung."

126 Stockton Street.

LARYNGEAL DIPHTHERIA EXPERIENCES*

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ST. LOUIS

Since the discovery of antitoxin, perhaps the most thought and judgment in diphtheria treatment is required in handling the laryngeal type, which gives a much higher death rate than diphtheria infection in the upper air-passages. Laryngeal diphtheria occurs most frequently in children under 10 years of age and may develop at any time of the year; more cases, however, are seen during the winter and spring seasons.

The immediate complications in diphtheria of the upper air-passages are usually of minor consequence in comparison with those of the laryngeal type. Here serious complications frequently occur early and may give the first indication for calling medical assistance. The physician usually finds conditions which demand his best judgment and immediate action. Symptoms of obstruction of varied intensity frequently occur early, and severe dyspnea may be preceded by few prodromal symptoms. Dyspnea occurs in direct ratio to the aperture of the glottis, and is due to swelling and thickening of the cords or loose membrane. The peculiar, harsh, prolonged respiratory sounds, coming from the larynx, with a negative history of aspiration of foreign substances, lead one to suspect laryngeal diphtheria. In most cases it is impossible to see any portion of the membrane without a special laryngoscopic examination. Distress is severe, according to the degree of obstruction, and antitoxin is only a valuable adjunct in the treatment.

The methods to be employed in attempting to relieve dyspnea depend largely on the degree of obstruction and the general condition of the patient. The point for decision is whether or not to attempt relief by *medical* means or to resort to surgical measures—intubation or tracheotomy.

If dyspnea is increasing slowly, exhaustion not severe, cyanosis slight, and the surroundings favorable, medical treatment may be instituted. Constant intelligent nursing is necessary, and the physician should be within easy call. In hospital practice, where the resident physician may visit the patient frequently and has the assistance of trained nurses, I have frequently seen patients in great distress, but without severe exhaustion, relieved by medical treatment. From observations made in infectious wards I feel that non-instrumental methods are worthy of more frequent trial in the above-described class of cases. When such methods are to be used, the patient should be placed in a well-ventilated room, free from drafts; on a mattress or blanket bed over which is erected a tent which is as impermeable as possible to the medicated vapors to be released underneath. It is well to have the sides of the tent fall to within four or six inches of the mattress and it should be large enough to cover the patient's entire body. The vapors may be generated in a croup kettle—a teakettle or a coffee-pot with an extension spout. A quart of boiling water is placed in the vessel, which may be heated with an alcohol, gas or gasoline burner, or an electric heater. I have used several medicaments with satisfaction; four to six drams (15.5 to 23 gm.) of compound tincture of benzoin, or four to eight drams of a turpentine mixture, formula as follows:

℞.	gm.		
Olei eucalypti			
Phenolis, āā	31	or	℥i
Spiritus terebinthinæ	248		℥viii

may be added to the water, which is kept at the boiling point. The kettle spout is placed in such position, under the edge of the tent and not far from the patient's head, as to prevent direct inhalation of the hot vapor. As such patients are frequently very restless, careful watching is necessary. The tent is kept moderately full of vapor, and it is well to raise the sides occasionally to allow a few breaths of fresh air. *Cold applications* may be made over the larynx. The gown and bedcovers should lie loosely and lightly. The inhalations may be continued for several hours and intermittently over a period of several days, depending on the strength of the patient as an index.

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* Read before the St. Louis Medical Society, Oct. 16, 1909.

Vomiting frequently relieves, especially if obstructive symptoms appear late and are produced by loosened membrane. A mild emetic, or gagging with the finger, may be used.

General medical treatment consisting of antitoxin and stimulation as necessary, diuretics, cathartics, etc., should be given as in pharyngeal diphtheria, or in the laryngeal type without obstruction.

Antitoxin is absolutely indicated in all forms of diphtheritic infection and should be used as early as possible. According to the degree of toxicity and nature of the case, 3,000 to 6,000 or more units may be given as an initial dose. It has been our experience that moderate-sized doses repeated every four to six or more hours are more effective and less depressing than massive ones—15,000 to 20,000 units. When the infection is of such severity as to tempt the use of massive doses, as many or more patients recover by using moderate doses repeated as above suggested. Polyvalent antistreptococcus serum has not proven of definite value in the cases of mixed infection with severe toxemia.

When a patient suffering from laryngeal diphtheria with dyspnea is found very weak, toxic, or much cyanosed, or is in unsatisfactory surroundings for medical treatment, mechanical or surgical measures must be instituted. It is usually necessary to obtain quick relief, and decision must be made between intubation and tracheotomy.

The operation of intubation was made possible by Dr. Joseph O'Dwyer, of New York, who perfected a series of special tracheal tubes and forceps to introduce and extract them. A special set of instruments and considerable experience is necessary before one can feel confident of being able to successfully intubate a patient; by aid of the sense of touch in children, and by laryngoscopic mirrors in adults. Those proficient in the introduction of the "intubation tube" are prone to become enthusiastic, and it may be used in many instances where inhalations and medical measures would suffice. The art of introducing the tube, once learned, is not easy to forget, and those familiar with its use usually succeed at the first attempt. The patient's body, with the arms to the sides, should be wrapped in a blanket or other convenient covering and held on the lap and against the body of the assistant, who places one arm around the patient and supports the head and holds the mouth-gag in position by placing the opposite hand flat over the side of the head and face. Some prefer to place the patient prone on a table, but I have been better able to control struggling with fewer assistants by the first-mentioned method. The manipulations necessary to introduce the tube are clearly described in the textbooks. A tube numbered to correspond with the age of the patient is usually selected, but not infrequently proves too small or too large—more frequently the latter.

If dyspnea be due to loosened membrane protruding into the glottis, indicated by more or less easy inspiration and difficult, prolonged expiration with a moist, rattling, laryngeal sound, extreme care must be exercised after inserting a tube. In such cases a small tube may be inserted and withdrawn to dislodge the loose membrane, and not infrequently it is expelled and any further instrument is unnecessary. After such an event, inhalations may be used to advantage.

Intubation may be employed in cases of severe dyspnea with exhaustion and cyanosis, and more or less dry respiratory sounds indicating recent or closely adherent membranes.

It is well to remain with the patient some little time following this procedure, for when sufficient strength has been regained after free respirations, the tube may be expelled by the strengthened expiratory efforts, and dyspnea may return with its original severity. Recently intubation was performed by a physician in a private home. The patient did well for two days and then expelled the tube suddenly and was asphyxiated before a physician could be summoned. In hospital practice a patient was intubated in the evening, enjoyed free and easy respirations for twelve hours and then quickly became cyanosed and dyspneic, and expired in a few minutes, and before a physician on the same floor could be summoned. The tube was found plugged with membrane which had loosened during the night.

When severe exhaustion exists, injury may be done by failing to accomplish intubation in one or two attempts. The strength is severely taxed by the struggles incident to the closure of the glottis by the tip of the finger guiding the tube. It is well, when unable to intubate successfully after two or three trials, to do tracheotomy early lest death ensue from acute dilatation.

A position permitting of rapid adjustment for tracheotomy.

If a very close-fitting tube is employed, a pressure paralysis may result. I had such a case, in which it was necessary to leave the tube in position nearly four weeks. I have seen 6 or 8 cases, in an institution where intubation is routine treatment for dyspnea, in which paralysis lasted from several weeks to nearly two years, it being necessary to keep a tube in the larynx during the entire time. There they have a "chronic tube ward," and it is frequently necessary to do tracheotomy before removing a tube which has been used to relieve dyspnea due to paralysis.

The glottis may admit only a tube which is readily expelled, and to introduce a large tube is either impossible or inadvisable because of the danger of pressure paralysis. One patient expelled the tube six times during a period of ten hours, gaining only temporary relief. It then became necessary to do tracheotomy on account of the increasing weakness.

Tracheotomy is usually made after unsuccessful intubation or in extremely severe cases of obstruction, and a portion of the increased death-rate of tracheotomy over intubation may thus be explained. It is usually the operation of necessity with the private physician. With the exception of a tracheotomy tube, every physician has sufficient instruments for the operation in his pocket case, and, in the absence of a tube, *a wire may be so bent* as to keep the trachea edges separated, or a rubber tube prepared as suggested in Keen's "Surgery" (vol. iii) by Brewer.

Tracheotomy is indicated in obstructive cases in which it is impossible to introduce a tube large enough to be retained in position; those in which the patient is very weak and deeply cyanosed, or in which the membrane is loosening and cannot be dislodged by vomiting or introducing a tube and withdrawing. In the latter class of cases cyanosis may be intermittent. It is the operation of necessity in the absence of an intubation set and when the disease has passed the stage at which medical treatment can be used. That such conditions frequently occur there can be no doubt, and they are a strong argument in favor of every physician familiarizing himself with the methods and technic of this life-saving operation.

The fear of hemorrhage has prevented many from performing tracheotomy promptly and when first indicated. The improper handling of hemorrhage has materially raised the death-rate due to the operation. It is seldom that an unpremeditated tracheotomy is performed without some bleeding. Blood coagulates rapidly in the trachea when the air passes through and over it during respiratory struggles immediately following incision of the trachea. If the patient is not in a position to allow fluids to gravitate from the trachea into the mouth, asphyxiation may occur after the opening is made. To assist in avoiding such accidents, I have placed patients in a recumbent posture with the head well lowered. Such a position has the advantage of allowing blood to escape through the mouth, should unexpected or unavoidable hemorrhage occur, and has a beneficial influence, as well, on the circulatory and respiratory systems.

Since the *majority* of cases for tracheotomy occur in children, a method has been used for conveniently placing the patient in a readily adjustable position with the head well down. An assistant sits on an ordinary chair with the body leaning well forward (see illustration). An impermeable covering is placed over his back, on which the patient is placed, head downward, one leg on either side of the assistant's neck, the knees being flexed and the legs grasped by the assistant. This position is comfortable and rapidly adjustable from a horizontal to a perpendicular position at the command of the operator. The patient's neck is on a tension with head well extended, and affords free space for operation. The hands may be tied or held by an assistant. An anesthetic (seldom necessary) may be given. the operator outlines the trachea and makes a one-half inch incision through the skin below the cricoid cartilage. A tenaculum hook is passed under the first ring and traction is made on the hook, thereby bringing the trachea into prominence. The skin incision is enlarged and the soft tissues separated by blunt dissection with the scissors or knife handle. The trachea should be incised by cutting from below upward to avoid hemorrhage. The tracheotomy tube is inserted and tied in proper position and the patient placed in a bed with the *foot elevated*. The foot of the bed should be kept elevated for twenty-four to forty-eight hours after operation. Several layers of warm, moist gauze are laid loosely over the tube and should be changed frequently.

Emergency *tracheotomy* in adults may be more safely performed by *lowering the head*. A chair or box may be placed under one edge of a table, or the Trendelenburg position used if an operating table be available.

It may be necessary to leave the tracheotomy tube in position for several days or a week, but it may be removed and reinserted after the first twenty-four to *thirty-six hours for cleansing* purposes. In this length of time the *wound edges are retracted sufficiently* to allow passage of air. The inner tracheotomy tube should be removed and cleaned every three or four hours.

When the membrane has disappeared the tube may be carefully removed and if *breathing* is free through the normal route, which may be determined by placing the finger over the wound, it may be left out; otherwise it should be reinserted. A gauze dressing should then be applied and general treatment continued during the period required for recovery. Owing to the degenerative changes of all the organs, especially the cardiac muscles, produced by diphtheritic infections, it is *advisable to* have patients remain quiet in bed for two weeks or more after all signs of infection have disappeared. Acute cardiac dilatation with serious results may occur suddenly and without warning.

CONCLUSIONS

Physicians should be prepared and expect to treat laryngeal diphtheria, which usually presents as an *emergency*.

Although possessing intubation instruments, the physician may find himself without them in an emergency and be compelled to attempt tracheotomy.

Non-instrumental methods of relief are worthy of more frequent trial, especially in institutional work and in those cases in which dyspnea is increasing slowly, exhaustion is moderate, cyanosis is not severe and the surroundings are favorable.

Intubation may be performed in cases in which the symptoms indicate recent and closely adherent membranes. It should be employed only when intelligent nursing may be had and when the physician is within easy reach.

Every physician should be familiar with the technic of tracheotomy. The cadaver or lower animal may furnish opportunities in this direction.

Tracheotomy may be more easily and safely performed by using the *tenaculum hook for tension on the* trachea, as described above; and by placing the patient in the position illustrated.

City Hospital.

Diphtheria Antitoxin in Pneumonia.—T. Romero writes to the *Siglo Medico*, Nov. 27, 1909, to call attention to the way in which pneumonia seemed to be mitigated or aborted in a number of cases in his experience in which he injected daily from 10 to 20 c.c. of diphtheria antitoxin. In two typical instances related in detail the patients were men of 73 and 74, and defervescence was observed the fourth and fifth day of the disease, which was the second and third day after the first injection. It seems to augment phagocytosis, and the mortality was *only half* of the usual death rate from pneumonia. Nothing else in his experience displayed such efficacy in modifying the severity of the disease.

A NEW PROLAPSUS PESSARY

GEORGE B. SOMERS, M.D.
SAN FRANCISCO

The severer forms of prolapse of the uterus are often very difficult to relieve by mechanical means. The pessaries commonly used are of two forms: (1) those supported externally by belts or straps, like the O'Leary; (2) those which are self-retaining, which are in the form of discs, rings or balls.

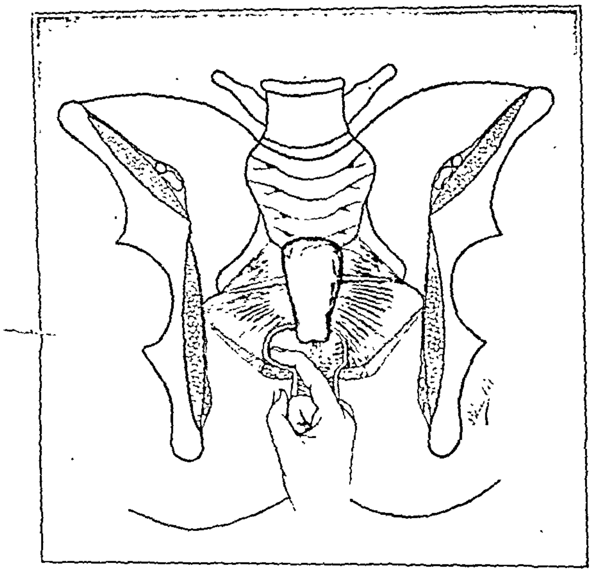


Fig. 1.—Diagram of the relations of the vaginal cavity to the levator ani.

The self-retaining theoretically should be the most convenient and comfortable, but practically they are often failures because they cannot be made to stay in place.

When it is found that the ring, the disc, or the ball will not stay in place, it is natural to ask why, and the accompanying diagrams have been worked out in an attempt to show the reason.

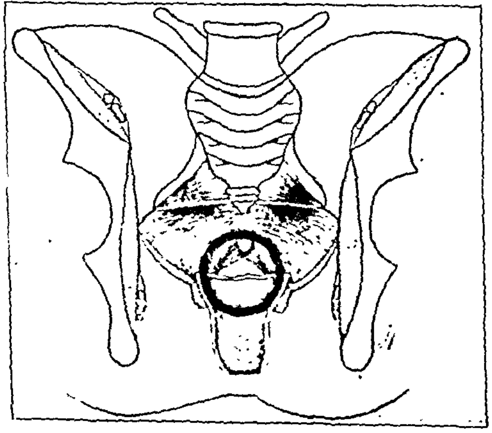


Fig. 2.—Diagram showing how a ring or ball pessary acts as a wedge, forcing apart the edges of the levator ani.

If in preparing to fit a pessary we examine the vaginal cavity, we will find on either side a shelf (Fig. 1). This is on the upper or rectovesical surface of the levator ani muscle and corresponds to the pubococcygeal portion thereof.

Self-retaining prolapsus pessaries are inserted with the idea of simply distending the vaginal cavity and blocking the descent of the uterus. The basis of support must, in such cases, be the above-mentioned shelf portions of the levator ani.

The reason why self-retaining pessaries work their way out is sufficiently explained by comparing Figure 1 with Figure 2. It will be seen that a ring or ball acts like a wedge and tends to force apart the edges of the levator ani.

If we modify the shape of our pessary, so as to take advantage of the shelf-like supports, we find that such a shape will often give relief in cases of prolapse in which other pessaries have failed. A ring bent so as to follow the outlines of a mushroom, as shown in Figure 3, has been used in the gynecologic clinic at Cooper Medical College for several years with much satisfaction.

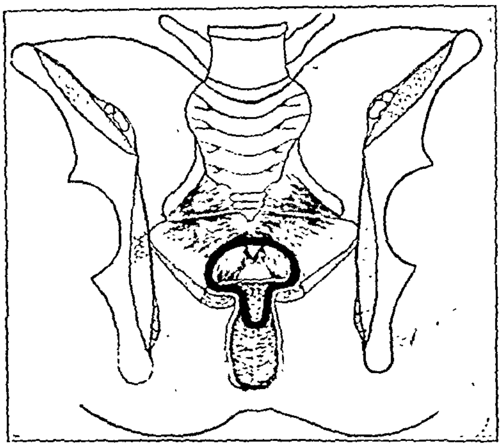


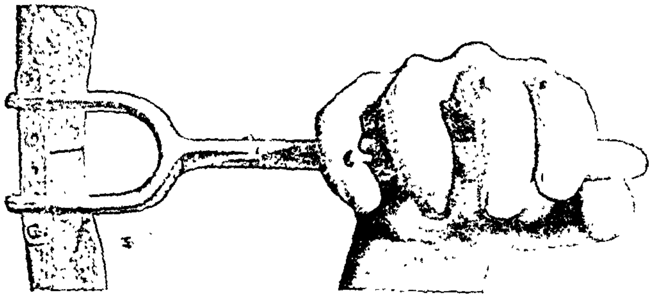
Fig. 3.—Pessary bent to follow the outlines of a mushroom.

135 Stockton Street.

FORCEPS FOR HOLDING BONE AND PLATE

ROBERT J. JAMES, M.D.
SEATTLE, WASH.

The instrument herewith shown is a forceps for holding bone and plate, devised to simplify the repair of fractured long bones with the plate and screws. With this forceps in place, the holes can be drilled and the screws put in quickly without much traumatism to the tissues.



Bone-and-plate-holding forceps

1314 Ninth Avenue.

Typhoid in Infancy.—In most cases the onset of typhoid is gradual and so insidious that several days may elapse before the true nature of the disease is suspected. In this respect, it conforms to the adult type.—A. F. Hamilton, in *Indian Medical Gazette.*

DERMOID CYST, ACCOMPANIED BY APPENDICITIS, IN ABDOMEN OF BOY FOUR YEARS OLD

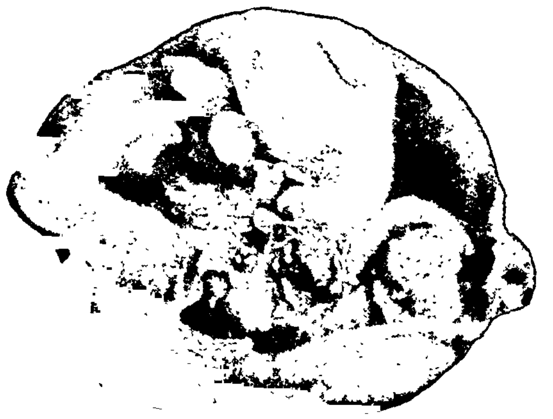
J. NORMAN WHITE, M.D.
SCRANTON, PA.

The following case is of interest because of the unusual location of the cyst and the obscurity of its origin.

Patient.—A. R., boy, aged 4, previous history negative. About one month before present illness the boy's mother noticed, when he was turning in bed a "bunch" the size of an orange in his abdomen about two inches to the right of the umbilicus. The bunch gave him no symptoms and she did not consult a physician about it.

Present Illness.—About seven days before examination, the patient began to have pain in the abdomen. He had some diarrhea and vomiting; pain, at first all over the abdomen, then localized at McBurney's point. All symptoms grew worse and the boy was admitted to Dr. Reed Burns' private hospital Sept. 10, 1909.

Examination.—Boy fairly well nourished. Large mass plainly felt and easily perceptible a little above McBurney's point. Entire abdomen distended and pressure caused pain. Boy very sick. Temperature 103, pulse 160, respirations 30. Diagnosis: Appendicitis with peritonitis, but nature of the mass uncertain.



Postperitoneal dermoid cyst removed from abdomen of boy 4 years old.

Operation.—By Dr. Burns. Incision in middle line. Pus free in abdomen, intestines distended, dark in color with patches of dirty, yellow, inflammatory exudate. Appendix ruptured, gangrenous, and adherent to the mass. Behind the peritoneum in the upper right hypochondriac region was a cyst the size of a large fist. The cyst contents had become infected, for pus was oozing out together with the pultaceous material which it contained. Patient was in a desperate condition. Pulse was imperceptible. Cyst was removed with difficulty *in toto*, appendix tied off with catgut, abdomen flushed with salt solution, glass drain placed in pelvis, gauze pack at site of the cyst.

Patient reacted but little from operation and died a few hours later.

Tumor.—The cyst contained a putty-like material mixed with hair and pus. A rudimentary premaxillary bone with four fairly well-formed incisor teeth and an upper lip were found. There was also a piece of amorphous bone the size of a chestnut.

Dermoid cysts, except ovarian dermoids, are congenital and are the result of cutaneous inclusions. They are most common about the face, neck, sacral and ovarian regions.

The origin of this cyst is as interesting as it is hard to explain, there being no viscus in this part of the body originating from the epiblast.

Bland Sutton, in Keen's "Surgery," says:

> For many years I held the opinion that dermoids had never been found growing primarily from any abdominal viscus save the ovaries, but in 1903 Mr. Arthur Hall sent me a specimen for examination in which a piliferous dermoid grew in the angle formed by the junction of the ileum and cecum between the layers of peritoneum. The parts were removed from the man after death. It is difficult on any theories adduced to explain the origin of this dermoid.

This case illustrates the well-known fact that we should teach our patients that any tumor, bunch or growth should receive surgical attention regardless of whether it gives symptoms or not. If this child had been operated on when the mother first saw his trouble, the cyst and appendix removed, his life would have been saved.

349 South Main Avenue.

A SIMPLE AND INEXPENSIVE APPARATUS FOR MAKING PHOTOMICROGRAPHS

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

In making permanent case records of rare or unusual skin affections, a photomicrograph which shows the most typical and striking of the changes that have taken place is often of decided value. The very considerable cost of an outfit for making these pictures, however, has prevented many individual workers from possessing them.

Formerly, I employed an instrument improvised from an ordinary hand camera, the end of the microscope barrel being fitted directly to the lens board of the machine, and sunlight serving for illumination. As might be expected, the pictures secured were far from perfect, but they were better than none. At present I am using a somewhat similar but much more efficient apparatus, which was constructed at a very small cost. Figure 1 gives a fairly clear idea of the general outlines of the appliance. It consists of a base, or platform, on which is placed a focusing-box, a microscope, a ray-filter, and a small arc-lamp. The principle on which it is built is a very old one, and of course no claim to originality is made.

The dimensions of the various parts are dependent on the size of the photographs to be taken. In this instance a 5-by-7 dry plate is employed, and the outer box, or sleeve, of the "camera" was made sufficiently large to fit the ground-glass frame and holder of a view camera in which these plates are used. Both boxes are of the same length, 3½ feet, and the inner one is constructed to fit smoothly but loosely in the outside casing, so as to telescope easily. Both are made of soft white pine, stained black inside. One end of the smaller box is partly closed by means of a wooden cap, in the center of which is a round hole, 1½ inches in diameter, for the barrel of the microscope. To prevent light leakage, this opening is surrounded by a loose sleeve of soft, black cloth. On one side of the box, near this end, is screwed a small anchor block of wood, measuring 1 by 1 by 4 inches, which fits into a corresponding niche between two blocks attached to the platform. The platform is a smooth board of seasoned hardwood, 6 feet long, 9½ inches wide, and 1 inch thick. Near one end a clamp is attached, for firmly holding the microscope in place, and, eight inches back of this, are fastened two short, transverse, parallel cleats which serve to hold between them the anchor block on the bottom of the inner box when the machine is in use. At the other end of the platform, and extending forward for a distance of 4 feet, two narrow strips of wood are attached, one on either side, to prevent any lateral movement of the focusing box.

In order to prevent blurring of the plate, the intervention of a color-screen between the lens and the source of light is absolutely essential. A solution of potassium bichromate is commonly employed for this purpose, but, acting on the advice of Mr. L. S. Wood, of the Pathological Department at Harvard University, I am now using a saturated aqueous solution of picric acid. It serves the purpose admirably, and is easier to handle than the chromic acid salt. A carefully selected bottle, made of bright, clear glass and having perfectly flat sides, makes a very good container.

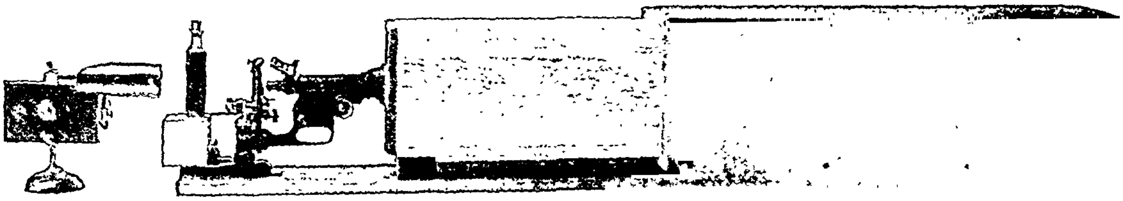


Fig. 1.—Apparatus for making photomicrographs.

The source of the light to be used is often a puzzling matter. A stereopticon arc lamp is excellent, but it is clumsy and is not always readily obtainable. For this purpose I employ an ordinary dark-field illuminator. It is somewhat lacking in candle-power, but is powerful enough to bring out the details when the lower magnifications are used.

In order to secure good definition the sections must be thin and well stained. In the majority of instances hematoxylin-eosin is a very satisfactory dye. In mounting the specimens, too much balsam should not be used, and the section should be made to lie snugly between the slide and the cover-slip.

Dr. T. Casper Gilchrist, of the Johns Hopkins Medical School, who has done some very excellent photomicroscopic work, prefers to flatten the sections by first gently warming the preparation over an alcohol lamp, in order to soften the balsam, and then allowing it to remain beneath a rather heavy weight, as a large book, for twelve or twenty-four hours. Similar results can be more easily secured by the use of the small "pile-driver" compressor shown in Figure 2. The pressure is furnished by an elastic rubber band which passes over the top of the hammer and beneath the base of the little machine. The head of the hammer rests on the center of the cover-slip, while the slide lies on the platform.

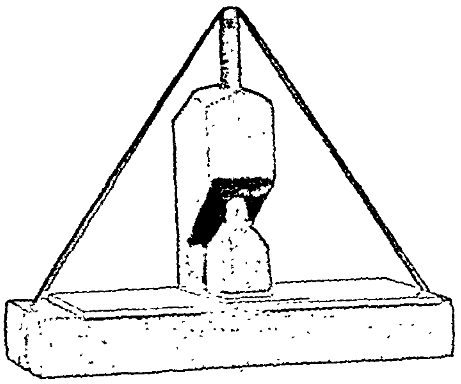


Fig. 2.—"Pile-driver" compressor for flattening sections.

When working alone it is sometimes rather difficult to focus the object properly on the ground-glass, a procedure best accomplished by manipulating the adjustment screws on the microscope after the camera box has been extended the desired distance. A small mirror, placed on the rear end of the platform and arranged to reflect the image cast on the screen, is a great aid and time saver.

After the machine has been focused, a small metal cup, which serves as a lens cap, is placed over the end of the lamp-barrel, the plate-holder inserted and the slide withdrawn. An exposure, varying in length from five to sixty seconds or more, is made by simply removing and replacing this cap.

Isochromatic dry plates give the best results. Autochrome plates can, of course, be used, but the time and care required for developing them outweights their value to anyone other than an enthusiast.

610 Commerce Building.

REPORT OF CASE OF OVARIAN PREGNANCY

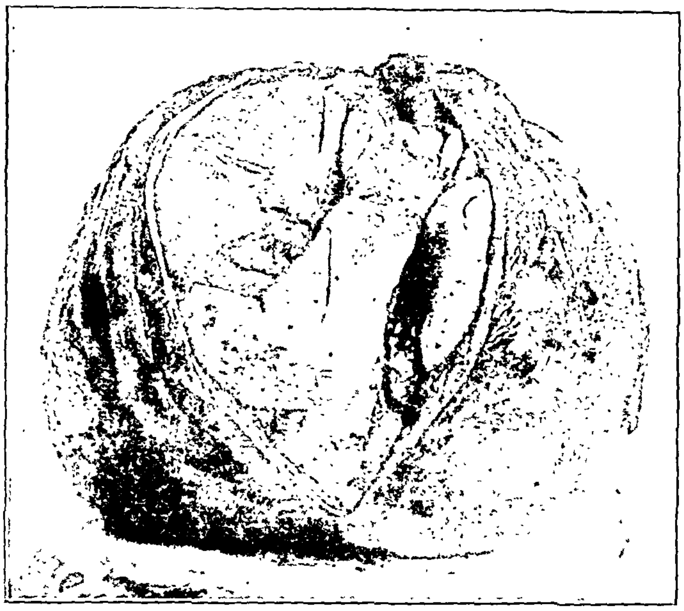
E. M. PRINCE, M.D.
Gynecologist, St. Vincent's Hospital; Surgeon, Hillman Hospital
BIRMINGHAM, ALA.

History.—E. I., aged 35, married, came to me with a large tumor of abdomen. The patient's mother had borne eight children. The patient had always been healthy up to time of present illness. She had none of the usual diseases of childhood; her weight at 15 years of age was 180 pounds. She was the mother of four children, the eldest 16, the youngest 10 years of age. Between these children twins were born, who lived to be 8 months old. The patient had been married seventeen years.

Present Illness.—This began in June, 1907, at which time the patient thought she became pregnant, as she had cessation of menstruation, nausea and fainting spells. In August, 1907, she had slight return of menses and pain in abdomen. At various times during this month pain in abdomen was quite severe. Her digestion was exceedingly poor. In November, 1907, she felt violent movements of the child and had a severe uterine hemorrhage. In February, 1908, the movements of the child were pronounced, and hemorrhage continued, some clots and "pieces of flesh" being passed. On March 1, 1908, the patient had a severe chill, lasting one and a half hours, followed by high fever for forty-eight hours. During this month menstruation returned and was normal as to time and quantity after this, and the patient suffered very little pain during her flow. Save for the large tumor in the abdomen her health was good.

Examination.—The patient appeared to be a well-nourished woman of ordinary intelligence. There were no enlarged glands of neck except a slight enlargement of the thyroid, but there were no symptoms referable to this enlargement. Her lungs and heart were normal. The liver was not enlarged and its area of dulness changed on deep inspiration, showing *no* adhesions between this organ and the abdominal wall. There was no tenderness over the epigastrium, and the spleen was not palpable. A large tumor was *found* in the lower abdominal region, which seemed more to the right *than the left* side. This tumor was firmly fixed and vaginal examination revealed the fact that the tumor was more to the *right side* and filled the entire pelvis. The tumor felt irregular, seeming to have nodules and indentations. The patient's temperature was 98 2/5, pulse 80. The white blood count was 7.800; red blood count, 4.500.000; hemoglobin, 95 per cent. (Tal.). The urine was negative. A diagnosis was made of dermoid cyst of right ovary, and operation was advised.

Operation.—The patient was prepared by cleansing the bowels thoroughly with castor-oil, and finding amount of urine for twenty-four hours preceding operation (52 ounces). One-half gram spartein sulphate was given hypodermatically at intervals for twenty-four hours preceding operation as a prophylactic against urinary suppression. The abdomen was prepared in usual manner and patient was placed on operating table at 8:27 a. m., April 30, 1909. A median incision was made and a mass of adhesions encountered in which bowel, uterus, right tube and a large mass were matted together. These were dissected and torn away and the mass removed, which proved to be the right ovary enormously enlarged and distended. The tube could be made out on one side of this organ. The raw surfaces were covered over in the best manner possible, using as suture material for this purpose plain catgut No. 1. For ligation of large vessels chromic gut No. 2 was used. The appendix was also removed, as it was bound down by adhesions. The abdominal wall was closed by layers. The operation was completed at 9:11 a. m. Gas-oxygen anesthesia was used, supplemented by two and a half ounces of ether. The patient's pulse was 96 at commencement of operation; 100 on leaving the table.



Pregnant ovary, removed and cut open, exposing child.

Postoperative History.—The patient had no nausea or vomiting and her convalescence was uneventful. She left the hospital on the sixteenth day after the operation in good condition.

Macroscopic Examination of Specimen.—The tumor was opened and found to contain a dead child fully developed, weighing 7½ pounds. (The accompanying illustration represents the tumor after incision. The sac was submitted to Dr. J. S. McLester of this city for a pathologic examination in order to identify tissue. His report is below. Owing to the findings of the pathologist and the fact that the right tube could be demonstrated as separate and distinct from the tumor I feel that I am justified in calling this a case of true ovarian pregnancy.

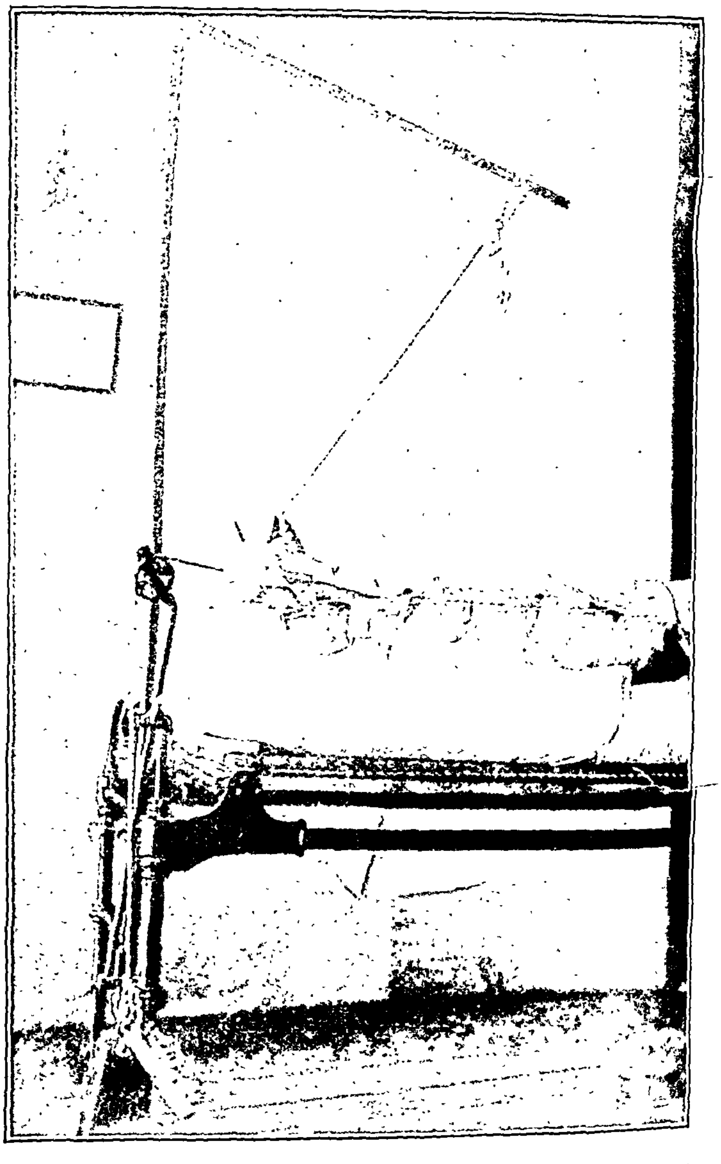
Microscopic Examination of Specimen.—The specimens of tissue which were removed from six (approximately equidistant) points on the sac in your recent case of ectopic pregnancy, were frozen for sectioning and present the following appearance: In each of the six specimens are seen corpora lutea, or, more properly speaking, the remains of these bodies, the so-called corpora albicantia. The stroma is identical in appearance with that ordinarily found in the ovary. I feel justified in concluding from the presence of the above mentioned structures, that each specimen was taken from the ovary.

109½ North Twentieth Street.

AN IMPROVED METHOD OF USING TRACTION IN THE TREATMENT OF FRACTURE OF THE FEMUR

LEWIS A. STIMSON, M.D.
Professor of Surgery, Cornell University
NEW YORK

Certain practical disadvantages in the use of Buck's extension in the treatment of fractures of the femur have long been familiar to the profession. They are the relative fixation of the limb to the bed, with its consequent relative immobilization of the body, and the lack of efficient lateral control of the broken ends of the fragments. Volkmann's chariot did something to relieve the former, in that it permitted the position of the limb and body to be shifted up and down in the bed, but we are all still familiar with the irksomeness of the confinement and with the frequently repeated requests of the patients to relieve their discomfort by some shift of position or adjustment of the dressing.



An improved apparatus for traction in treatment of fracture of the femur.

The Hodgen suspended splint was a great improvement in this respect, and, in addition, gave the opportunity measurably to control the ends of the fragments by adjustment of the supporting bands, and for many years in my practice it has almost wholly superseded the Buck and Volkmann combination.

In fractures close above the condyles and in those of the neck in the old, it is eminently satisfactory. But it has the drawback that the amount of traction cannot be accurately measured or always efficiently maintained without constant attention, and that it cannot always be so adjusted as to give and maintain the powerful traction often needed in fractures of the mid-shaft in the robust and in some of the neck in the young.

For about three years now I have employed a combination of the two—traction by weight and pulley and suspension by the Hodgen splint—and have found the results so satisfactory that I desire to make the method more widely known. The traction can be accurately measured and maintained, transverse displacement can be corrected and prevented by adjustment of the supporting bands, and the comfort of the patient is vastly increased. Whenever I substitute it for a Buck's extension that has been worn for a week, the patient testifies to prompt and gratifying relief.

The materials required are the adhesive plaster, pulley and weight of Buck's extension, a Hodgen splint, and provision for suspension. For the Hodgen splint of the shops a substitute can be made of a stout iron rod bent to the shape of an elongated U, the arms of which are nearly as long as the limb; it should be slightly bent at the point corresponding to the knee in the direction of flexion of that joint. The curve of the U is to lie below the sole of the foot.

For those who are not familiar with the use of the Hodgen splint some details may be useful. From side to side of it should loosely pass five or six doubled pieces of roller bandage on which the limb is to rest; the center of each piece should encircle one side-bar of the splint, and the ends should be tied together over the other so that it can be readily tightened or loosened. Or single bands made fast with safety-pins can be used. To each side-bar a cord is attached, one end just above the ankle, the other a little below the upper end, each cord being about half as long again as the distance between its attachments, and a single cord for suspension is tied about their bights. This latter cord may be attached to a stout hook in the ceiling or to any other improvised fixed point, which, preferably, should be 3 or 4 feet above the bed. A convenient support can be made of two pieces of gas-pipe united by an elbow, as shown in the illustration.

The wheel over which the cord bearing the weight passes should be twelve or eighteen inches beyond the sole of the foot, in order that lateral shifts of the patient's position in the bed may not notably affect or be affected by the line of traction.

The adhesive straps are applied to the limb, and their ends to the spreader and the cord bearing the weight, as in arranging for Buck's extension. Then the supporting bands attached to the splint are passed under the leg and thigh, the bands being of such length that the side-bars will be a little below the level of the anterior surface of the limb, the supporting cord attached, and the limb raised so as to swing clear of the bed. Then such adjustment of the supporting bands of the splint as may be needed for the patient's comfort or to make the support uniform, is made.

After the full effect of the traction has been obtained, such coaptative pressure on the fragments as may be indicated can be obtained by tightening or slackening one or the other of the bands supporting the thigh to move the affected end antero-posteriorly; or, to move them laterally, by two bands attached one to each side-bar and tightened to make lateral pressure in opposite directions upon the two ends. In the latter case the upper ends of the side-bars must be held apart by a hoop-spreader, as shown in the illustration.

THE TYPHUS FEVER OF MEXICO (TARBADILLO)

PRELIMINARY OBSERVATIONS *

H. T. RICKETTS, M.D.
AND
RUSSELL M. WILDER
CHICAGO

It will be recalled that Nicolle[1] and his associates recently have greatly advanced our knowledge of typhus fever by two achievements. First, it was shown that the disease could be transmitted to the chimpanzee by the injection of the blood of human patients, and in a similar way from the chimpanzee to the macacus monkey (*Macacus sinicus*). Strangely they were not able to infect the macacus directly with virulent human blood.

Their second important result consists in the transmission of the disease from macacus to macacus by means of the ordinary body louse (*Pediculus vestamenti*). From the epidemiologic conditions which prevail in Tunis they were able to rule out the flea and the bedbug as carrying agents.

When the monkey has once been infected with the louse, they attempted to transfer the disease from animal to animal by means of injection from the first monkey, but the experiments resulted only in what were considered abortive attacks of typhus. Hence they concluded that the virus underwent a loss of virulence in the monkey.

They obtained apparently typical eruptions in both the chimpanzee and the monkey, but not uniformly in the latter.

Recently also, Anderson and Goldberger[2] apparently have been successful in transmitting the typhus fever of Mexico to a macacus and a capuchin by the direct inoculation of virulent human blood.

Their success in this regard and Nicolle's failure (i. e., to infect the monkey by direct injections of human blood) would seem to bring into question the identity of European typhus with that of Mexico. Prominent Mexican physicians, indeed, for some years have contended that the two are not identical, the chief difference being in the slower onset and defervescence of the Mexican disease. This is particularly true in adults. In children the onset and defervescence of the Mexican disease resemble the European more closely.

It seems that the relationship of the two cannot be decided definitely without a more detailed experimental comparison. They may be very closely related, though perhaps not absolutely identical, particularly in view of the fact that both are probably carried by the body louse.

We may now describe some of our own experiments bearing on the transmission of the disease to the monkey and the *non-filterability* of the virus.

I. TRANSMISSION TO THE MACACUS BY INJECTION

We have been able to confirm the probable susceptibility of the monkey to inoculations with the blood of patients suffering from the typhus fever of Mexico, as reported briefly by Anderson and Goldberger, and to obtain additional information regarding the degree of susceptibility of this animal.

In the two monkeys which apparently were infected by Anderson and Goldberger, multiple inoculations were used. Their macacus received a total of 20 c.c., divided into three injections, and the capuchin a total of 8 c.c., in two injections.

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* From the University of Chicago (Department of Pathology), and the Memorial Institute for Infectious Diseases, Chicago.

[1] Compt. rend. Acad. sc., July 12, 1909, cxlix; Sept 6, 1909, cxlix.

[2] Anderson and Goldberger: Pub. Health Rep., Dec. 24, 1909.

In our inoculations single injections were given, the animal being *Macacus rhesus*.

On January 11, a quantity of blood was drawn from the median basilic vein of José Hermandez, a patient in the *Hospital General* (Mexico City) on the eighth day of his sickness. The fever and condition of the patient were typical for an attack of typhus of this duration, the attack being one of moderate severity. Although the skin was quite dark, the spots, not yet petechial, could be seen over the abdomen, chest, axillary skin, arms, legs and back, and the conjunctivæ were reddened characteristically. The spleen showed little or no enlargement on percussion, and it could not be palpated. Since the blood was drawn the patient has passed through a typical "crisis," which occupied about three days, and is now convalescent.[3]

Two cubic centimeters of the blood of the patient planted in 50 c.c. of broth have remained free from discoverable micro-organisms, which corresponds with the usual results of cultivation experiments with typhus blood.

Blood Inoculation Experiment.—Inoculations of 1, 5 and 10 c.c. of defibrinated blood were made respectively into Monkeys 5, 6 and 7. No. 5 died five days after its inoculation, showing a consolidation of the lungs, and since it had had no fever, it was discarded from the experiment. In addition, Monkey 4 received 8 c.c. of the serum from the same blood.

The blood after defibrination stood at room temperature (15 to 20 C.) and in diffuse light, for from six to seven hours before injection.

The 5 c.c. of blood which Monkey 6, weighing 2010 gm., received was diluted to 15 c.c. with sterile physiologic salt solution, and the entire amount introduced intraperitoneally. Its temperature on successive days was as follows:

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	100.9	1/17	100.2	104.9
1/12	99.0	.....	1/18	97.6	104.3
1/13	99.3	101.4	1/19	103.3	101.8
1/14	100.1	102.4	1/20	97.0	101.0
1/15	100.4	103.6	1/21	99.1	93.0 *
1/16	97.3	102.7			

* Death.

On January 17, six days after inoculation, the animal ate little, and sat "huddled-up," with hairs more or less erect. This condition continued, and on the 19th there was increased secretion from the conjunctivæ, and the animal coughed moderately. The illness appeared more severe on the 20th; there was no resistance to manipulation; emaciation; moderate diarrhea. On the 21st, when the temperature became subnormal the animal was still somewhat responsive until about the middle of the afternoon, when its condition grew rapidly worse, and at 9 o'clock it was moribund.

The autopsy, which was performed at once, showed nothing distinctive, and very little that appeared abnormal. The lymph-glands generally were moderately enlarged, but were not congested or hemorrhagic. Those of the axilla and groin were the seat of old pigmentation. The lungs were pink, and showed no inflammation or other alteration except for a slight amount of atelectasis at the upper border of the left lower lobe. The pleuræ were free from signs of inflammation. Moderate swelling of both the kidneys and liver were present, but they were not degenerated. The spleen was rather firm but not distinctly enlarged. No evidence of infection was found in the peritoneal cavity. The meninges and cerebral cortex were free from congestion, edema or other signs of inflammation.

A bouillon flask culture from the heart's blood, and agar slants from the viscera, remained sterile.

Monkey 7, a male weighing 2150 gm., received 10 c.c. of the same defibrinated blood, made up to 20 c.c. with salt solution. One-half the quantity was injected intraperitoneally, the other half subcutaneously. Its temperature on successive days is given below.

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	104.0 *	1/19	102.2	105.2
1/12	101.8	102.6	1/20	102.7	105.6
1/13	100.8	102.9	1/21	102.4	105.6
1/14	100.2	102.7	1/22	103.2	106.6
1/15	100.5	104.1	1/23	100.6	104.8
1/16	101.4	104.3	1/24	105.1	105.4
1/17	98.0	105.1	1/25	103.2	104.6
1/18	100.4	104.7	1/26	103.1	107.2

* Before injection.

The animal first began to appear sick on the 16th, the second day of fever. On the 17th it made little resistance to manipulation and from this on it appeared distinctly ill and ate little. It developed no marked diarrhea, although the stools became rather soft. While the temperature became high the animal at no time lost its responsiveness. The conjunctivæ were not noticeably reddened, and a distinct eruption could not be identified. After a rather long and severe course, the animal recovered.

Monkey 4, weighing 1800 gm., received 8 c.c. of serum of the same blood; the serum was obtained by defibrination and centrifugation. This quantity was diluted to 25 c.c. with salt solution, one-half being injected intraperitoneally, the other half subcutaneously. The temperature on successive days was as follows:

	9:00-10:00 a. m.	3:00-4:00 p. m.		9:00-10:00 a. m.	3:00-4:00 p. m.
1/11	.....	103.6 †	1/17	104.2	104.2
1/12	100.0	.....	1/18	101.5	104.2
1/13	99.4	103.3	1/19	103.2	103.5
1/14	99.7	102.1	1/20	101.1	103.0
1/15	100.4	103.4	1/21	100.6	103.7
1/16	101.3	102.9	1/22	*	**

† Before injection.
* Too low to register.
** Death at 6 p. m.

On the 17th, the first day of distinct fever, the animal, which had hitherto appeared vigorous and healthy, looked sick, unkempt, its hairs stood up, and it "huddled up" even in the sun. This condition continued, food was refused, and emaciation developed. On the 20th a moderate diarrhea appeared and continued until death. On the afternoon of the 22d it became soporose, and died at about 6 o'clock. An eruption which could be referred positively to the infection, or bearing a resemblance to that of typhus fever, could not be identified. An "eruption" which did appear on the skin of the lower chest and the upper portion of the abdominal skin probably was accidental. On the 18th, the second day of fever, the monkey had been bled from the heart, for cultivation and other experiments. A small amount of blood escaped through the skin when the needle was withdrawn, and at autopsy it was found that some subcutaneous hemorrhage had occurred and that the blood had "diffused" posteriorly in the form of a rather narrow band, *following the median line. The "eruption"* was roughly median although it extended about an inch beyond the visible limit of the subcutaneous extravasation. In character, it was at first pink, that of the early rose spot, and seemed to disappear on pressure. It appeared two days after the heart had been punctured and on the fourth day of fever. On the following day and subsequently it became darker, more or less cyanotic in color, and could not be effaced by pressure. The spots were rather ill-defined, and appeared to consist of collections of minute punctiform hemorrhages. A similar condition could not be identified on other parts of the body, and in view of the subcutaneous hemorrhage which complicated the situation, it seems probable that the eruption had its source in the latter rather than as a manifestation of typhus fever.

At the autopsy, the lungs were found of a normal pink color; there were no signs of inflammation. On the visceral pleura, particularly of the left lung, were a number of small, circular, dark-red hemorrhages from 0.5 to 1.5 mm. in diameter. The pleural cavities were normal; the heart normal; no inflammation of the valves or pericardium. The liver was apparently somewhat enlarged, pale, as if fatty, but showed little or no congestion; the lobules were well marked; anterior border distinctly rounded. The spleen was about 1.5 cm. longer than that of Monkey 6, and perhaps a few millimeters broader; was distinctly enlarged, bluish red in color, and of rather firm consistence; contained no hemorrhages.

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[3] Both the onset and the crisis of the typhus fever of Mexico are said to be less abrupt than in the classical European typhus. This has been contended by prominent Mexican authorities, and has appeared in their literature, for a number of years.

The kidneys were perhaps a little enlarged and moderately congested; cortex and pyramids of a homogeneous normal color; striations normal; the cortex had a relation to the medulla of about one to one.

The mucous membrane of the colon was much reddened, and perhaps even hemorrhagic; the colon contained a large amount of glairy mucus but no blood or feces. The mucous membrane of the ileum appeared normal, and the ileum contained nothing but a slightly viscous yellowish fluid; there was a short intussusception with no inflammatory or obstructive signs of the parts involved. The duodenum contained bile-stained mucus, the mucosa being normal. The stomach contained some undigested banana and mucus.

The lymphatic nodes everywhere seemed more or less enlarged but were not congested or hemorrhagic. Those of the groin and axilla were almost black from some previous pigmentation.

The meninges showed a good deal of congestion and edema, the fluid being perfectly clear. The cerebral cortex appeared normal. Other parts of the central nervous system were not examined.

Cultures, as in the case of No. 6, remained sterile, including those from the meninges.

As basis for interpreting these experiments, we have for consideration: the existence of an incubation period which was approximately the same in all three animals, and during which they remained healthy; the occurrence of illness and fever followed by the death of two of the animals; the sudden onset of fever and illness, and the rapid defervescence in the animal which recovered; the negative outcome of cultures; and the more or less negative findings at autopsy, corresponding with the condition in typhus in man.

The temperature curves of Monkeys 4 and 6 suggest that the interpretation of infection purely on the basis of the fever manifested may be attended by difficulties in some instances. The variations between the morning and afternoon temperatures of uninfected and apparently healthy monkeys is often considerable, and in our experience has not been constant in the same animal from day to day; marked variations have been encountered when different animals, apparently healthy, were compared. The morning temperatures of healthy controls have habitually been from 0.8 to 1.8 or 2.0 degrees lower than those of the afternoon. The former is commonly below 102.0, and may lie between 99.0 and 101.0 for several days in succession; whereas in the afternoon (from 3 to 4 o'clock) it commonly is found at some point between 102.0 and 103.0. The comparatively cold nights and the warmer days may have some influence on the more extreme variations. We have attempted to eliminate this factor as much as possible by warming the room from the hours of 5 p. m. to 9 a. m., the temperature at night being about 15 C. During the warmer portion of the day the animals have been placed where they could avail themselves of the sun.

It is noteworthy that No. 6 on only one day, the 19th, exhibited a morning temperature (103.3) which was distinctly above the normal for that hour, and that on only two days after illness began (17th and 18th) was it distinctly above the normal for the afternoon, yet from the 17th on it was manifestly a very sick animal. The temperature was subnormal for two days preceding death.

In No. 4 the morning temperature was above the normal limit on two days (17th and 19th) and in the afternoon on five successive days, the period of subnormal temperature preceding death being much shorter than in the case of No. 6.

In No. 7 the morning temperature was somewhat above the expected normal (being from 102.2 to 103.2) for four successive days, and in the afternoon there was rather marked elevation for ten successive days.

The short course of the fever and the fatal termination in Nos. 4 and 6 may perhaps be accounted for by a relatively low resistance on their part.

In drawing the line between the end of the incubation period and the onset of disease, the general appearance and behavior of the animal appear to be of equal or greater importance than the temperature alone; taken together they are a sufficiently satisfactory index.

There is some difference between the incubation period of Nos. 4 and 6, on the one hand, and No. 7, on the other. In the two former it lay between five and six days, whereas in the latter it was reduced to four days or less. The difference in dosage may have accounted for this.

It is worthy of comment that the smaller dose (5 c.c.) which No. 6 received seemed more virulent than the 10 c.c. administered to No. 7. Differences in the resistance of individuals may, of course, be called on to explain this. No. 6 received its entire injection intraperitoneally, whereas in No. 7 the amount was divided equally between the peritoneal cavity and the subcutaneous tissue. Whether there is a difference in virulence depending on the route of injection has not been determined. No. 4 is hardly comparable with 6 and 7 in this regard inasmuch as it received serum rather than defibrinated blood.

We may further call attention to the fact, as mentioned at the outset, that a single injection of virulent blood, as well as the multiple injection used by Anderson and Goldberger, is capable of producing infection, and this with a short incubation period. It is unfortunate that the animal which received 1 c.c. of the virus died of other causes, since it was hoped that this injection might furnish some index regarding the degree of susceptibility of the monkey. This is important from the point of view of insect transmission, which would seem to demand an animal of rather high susceptibility. The more exact susceptibility of the species will be studied further.

It is of some significance, too, that the serum appears to be infective as well as the defibrinated blood. As yet we have no data concerning the relative infectivity of the two, further than that 8 c.c. of serum appeared to be as virulent for No. 4 as 5 c.c. of blood was for No. 6.

The material injected was diluted with salt solution on theoretical grounds, and because experience with Rocky Mountain spotted fever suggested that dilution of the virus might favor infection. Dilution is known to render less effective specific antibodies which may be destructive to the virus, and there can be little doubt that blood drawn from typhus patients on the eighth day of the disease contains germicidal antibodies, particularly since the disease is one which, clinically, is known to cause the development of distinct immunity. Dilution may also favor infection through the peritoneal route by affording better conditions for rapid absorption or dissemination of the micro-organisms. In experiments with spotted fever we have noted occasionally that smaller doses of virus would cause infection when larger doses of the same material would not, the injections being intraperitoneal. Small doses, as 0.01 c.c., are usually diluted with 2 or 3 c.c. of salt solution, whereas larger doses, as 5 c.c., are diluted to a much less degree or not at all.

The moderate diarrhea which appeared in No. 6 was probably of no significance, inasmuch as certain of the uninoculated animals were similarly affected. We may, however, call attention to the fact that some Mexican observers insist that there is a certain degree of intestinal disturbance in typhus in man, manifested frequently by diarrhea, and the right iliac region is habitually examined clinically for signs of such disturbance. We have observed such disturbance in a number of instances, but have no personal knowledge of its relationship to typhus fever.

We are hardly in position as yet to make a thorough comparison of the infection in the monkey with that in man. It may be stated, however, that the incubation period as obtained by this method of infection was shorter than that which is accepted for man, the latter being in the neighborhood of ten to twelve days. Manifestly this is subject to considerable variation in experiments, since in the macacus infected by Anderson and Goldberger it was twelve days, and in our No. 7 only four days.

The duration of typhus in man varies, according to Dr. Genaro Escalona, from about twelve days in children, in whom it is comparatively mild, to twenty-one or twenty-four days in adults. In Monkey 7 the course lasted for approximately twelve days.

The onset in all three animals was sudden and the defervescence in No. 7 moderately rapid, comparable to the conditions in human patients. In man the temperature is said to rise gradually for from three to four days, when the fastigium is reached, the morning remissions being marked, as in the case of the experiments described. In man also defervescence occupies from three to four days, followed by from two to four days of subnormal temperature, corresponding to the conditions in Monkey 7.

Bacteriologically the conditions are similar, in that attempts at cultivation by ordinary methods have given negative results.

Likewise the findings at autopsy are similar, nothing distinctive being found in the animals, as is the case in human beings. The cerebral congestion and edema of No. 4, the slight or moderate enlargement of the spleen, congestion of the abdominal viscera, doubtful or moderate enlargement of the lymph-glands, and the absence of localized inflammations, are conditions which are commonly found in man. The negative findings appear to be of more diagnostic significance when considered with the clinical course, than positive anatomic changes. Degeneration of the liver and kidneys are frequently found in man, but they are not a necessary accompaniment of fatal infections.

In the experiments performed so far, there is a lack of correspondence with the human infection, in that no eruption resembling that of typhus appeared in the animals. Although it would be gratifying to reproduce this phenomenon, failure to do so can hardly constitute a valid argument against the character of the infection in the monkeys. We recall that not all monkeys and guinea-pigs infected with spotted fever exhibit the eruption, and the conditions may be similar in typhus.

Eventually it seems probable that the nature of the infection in all cases of recovery can be checked up by means of immunity tests. The disease appears to be one which, in man, confers distinct immunity, and animals which have once suffered from the infection should be immune to further inoculations. This will be investigated and reported on at a future date.

II. FILTRATION EXPERIMENT

With the desire of obtaining information about the virus of the disease, especially as having a possible bearing on the approximate size of the micro-organism, we have performed a filtration experiment which it is desi able to report.

Of the blood referred to in the previous experiment 34 c.c. were centrifugated until the corpuscles occupie approximately the lower three-fifths of the column. Th overlying serum was drawn off and replaced by an equa amount of sterile salt solution. The corpuscles wer thoroughly mixed or washed with the latter and agai centrifugated moderately, after which the overlying flui was added to the first portion. This was repeated agai and the three fluid portions then combined. It seeme probable that through this procedure one might obtai a larger quantity of micro-organisms in the fluid tha by resorting to a single more vigorous centrifugation This seemed better also than to attempt to filter th uncentrifugated blood, which indeed is an almost impossible task with moderate pressures.

It seems sufficiently accurate to consider that th defibrinated blood consisted of about equal parts o serum and corpuscles, and that we obtained the equivalent of about 17 c.c. of serum by this washing process.

For the purpose of filtration the serum was diluted to 51 c.c. by means of salt solution, and this quantity was divided into two equal portions, one to be filtered and the other to be injected without filtration.

The first portion was passed through a small Berkefeld candle, and with the threefold dilution it filtered readily. The filter was washed by passing through it an additional 5 c.c. of salt solution, this filtrate being added to the first.

The interval between the drawing of the blood from the patient and the injections was from six to seven hours, as in the preceding experiments.

The total quantity of each portion was approximately 25 c.c., of which one-half was injected intraperitoneally, the other half subcutaneously, after suitable preparation of the skin.

The result of the injection of the unfiltered serum into Monkey 4 was given in the first part of this paper, it being our conclusion that the animal became infected with and died of typhus fever.

No 3, which received the filtered serum, exhibited the following temperatures on successive days:

	a. m.	p. m.		a. m.	p. m.
1/11	....	103.2	1/18	102.6	102.5
1/12	102.5	102.6	1/19	103.6	101.6
1/13	102.8	103.3	1/20	102.6	103.6
1/14	102.7	103.6	1/21	101.9	103.9
1/15	103.6	103.8	1/22	102.6	104.4
1/16	103	102.6	1/23	101.6	102.7
1/17	103	102.8	1/24	101.7	103.6

In spite of rather high morning temperatures, the animal has been in apparently perfect health since the date of inoculation, which is in distinct contrast with the course shown by No. 4. As stated previously, the latter, after an incubation period of about six days, developed fever, grew sick, and died eleven days after inoculation, with findings which are in harmony with those of typhus fever.

We may therefore conclude that the virus did not pass through the filter employed, or if it did, that it did not pass through in a quantity sufficient to produce recognizable infection. It seems probable, therefore, that the virus of the typhus fever of Mexico may be classed with the unfilterable. It is, of course, to be understood that the micro-organisms may find their way through filters of greater porosity which may be encountered, or through filters with thinner walls. It is possible, too, that they may even pass through filters of the type and thickness employed in this experiment, in quantities which are sufficient to vaccinate, but not sufficient to produce virulent infection. As affording an analogy for this possibility, it may be mentioned that we have on several occasions produced extremely mild attacks of spotted fever in the guinea-pig, resulting in permanent immunity, by the injection of very small doses of virus. This possibility will be investigated.

III. THE QUESTION OF CONTAGIOUSNESS AND TRANSMISSION BY INSECTS

Although the old idea that typhus is a contagious disease still has strong supporters in Mexico City, the conception that insect transmission is in better accord with the epidemiologic conditions is prominent in the minds of those who are in daily contact with the disease.

Without giving a detailed presentation of the conditions at this time, it may be stated that of the three insects which are most open to suspicion, i. e., the louse (*Pediculus vestamenti*), the bedbug and the flea, only the first would seem to merit serious consideration, because of the epidemiology of the disease. This conclusion is, of course, strongly supported by the results already obtained by Nicolle.

The season of greatest predominance of typhus in Mexico City (the spring) does not coincide with the period of greatest prevalence of the flea (summer). And, regarding the bedbug, we have knowledge of individual cases which, it would seem, could not possibly have been carried by this insect.

Although our own experiments with the louse, which have been under way for some time, have not yet resulted in transmission, they will be carried further and reported in detail at a future date.

We take pleasure in acknowledging our great indebtedness to the local authorities and physicians of Mexico City who have cooperated with us in various ways: more particularly to Dr. Gavino, Director of the Bacteriologic Institute, where we enjoyed the advantage of a well-equipped laboratory, and to his assistant, Dr. Girard; as well as to Drs. Fernando Lopez and Genaro Escalona, of the General Hospital.

1360 Fifty-eighth Street.

A STOPPER FOR BLOOD-COUNTING PIPETTES

MALCOLM SEYMOUR, M.D.
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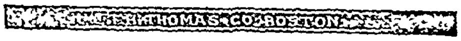
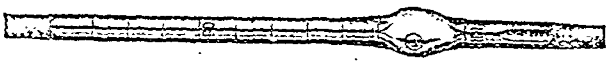
This device is intended to keep the contents of an ordinary blood-counting pipette from flowing out of either end, while being carried in the apparatus case. It was designed to take the place of the ordinary rubber band commonly used for this purpose. It consists of a piece of hollow rubber tubing of sufficient caliber and length, closed at both ends with solid rubber plugs which are vulcanized to the rubber tubing. The *tubing* between the plugs is cut in halves longitudinally, thus allowing the insertion of the pipette. Its advantage is that it does not admit of the pipette being forced through the ends of the rubber by reason of the tension thereof, thus allowing the escape of the contents of the pipette, as may happen with the simple rubber band.





405 Marlborough Street.

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

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(Concluded from page 377)

EXPECTORANTS

The best drugs to increase the secretion of the mucous membranes of the upper air tract are ammonium chlorid in small doses, ipecac, and iodids.

While ammonium chlorid is disagreeable to take, if given in a sour mixture it is not seriously unpleasant. Just because a patient happens to have a cold of some sort it is no reason why he should have his stomach knocked out, his digestion interfered with, and his appetite lost by nasty, sweet-tasted expectorant mixtures. There is no need for squills in any form as an expectorant. There is no need for senega in any form as an expectorant. The syrup of tolu makes a nice, smooth menstruum, but still is sweet. Tolu has no expectorant properties whatsoever. The syrup of wild cherry is not unpleasant, but still is sweet, and any sedative effects from the minute amount of hydrocyanic acid that it contains is mythical. These last two syrups, however, should be retained in the Pharmacopeia as making a change in the appearance and taste of a cough mixture that must be repeated if the previous taste palls on the patient. There is no use for the fluidextract of wild cherry.

Of all expectorants or stimulants to mucous membrane secretion, there is none yet offered that is better than ammonium chlorid. Small doses of it in the early stages of congestion, frequently repeated, and larger doses, infrequently repeated, in the second and third stages of bronchitis, or an allied condition, should be given.

Ipecac is another valuable drug to increase the secretion of mucous membranes. It renders the mucus more liquid and less tenacious. The dose as an expectorant should be very small, as large doses, of course, will cause nausea. There is also no specific ability of ammonium chlorid and ipecac to act only on the mucous membranes of the upper air passages. They are just as valuable for catarrh of the bile ducts, or any other mucous membrane.

The following combination as an expectorant is a good one:

R.	gm. or c.c.		
Codeinæ sulphatis	20		gr. iv
Ammonii chloridi	5		ʒiss
Syrupi ipecacuanhæ	5	or	fl.ʒiss
Syrupi acidi citrici	25		fl.℥i
Aquæ, ad	100		ad, fl.℥iv

M. et Sig.: A teaspoonful, in water, every two hours.

The above prescription is simply a frame. The codein might be omitted if there were no unnecessary cough, i. e., cough without expectoration. Heroin might be used in its place, if one preferred. The dose of the ammonium chlorid might be increased, and the frequency of the administration decreased. The ipecac might be omitted, if the expectoration were free. If the patient were a child, the syrup of citric acid might be changed to syrup of tolu or syrup of prunus virginiana, if deemed best.

If the syrup of tolu is used it must always be remembered that it is a saturated syrup, and to dissolve salts, as ammonium chlorid, water should be added to the prescription. The syrup of wild cherry, on the other hand, will take up more salts. The above sour preparation, however, will not disagree with any stomach, provided that the ipecac is carefully measured by the druggist, and not carelessly and thoughtlessly "just poured" into the bottle.

There is no reason for using ammonium carbonate as an expectorant. It is too irritant and will upset most stomachs, and has no expectorant advantages over ammonium chlorid. If stimulation is required, it should be obtained in some other manner.

The value of iodids in asthma and chronic bronchitis is unquestioned. The dose can only be determined by the need of the patient and his susceptibility to it. The best way to administer iodid is in a saturated solution, and as many drops given as seems advisable, either in a considerable amount of water or in milk, either directly or in an hour after meals. If it seems better to order the iodid in larger solution, in teaspoonful doses, plain water should be used, and this given well diluted as above.

There is no tangible reason why the old syrup of sarsaparilla compound should be perpetuated, either for itself or on account of its frequent use as a menstruum for iodids. It is disagreeable and useless. Sarsaparilla soda and sarsaparilla water make very pleasant drinks, but sarsaparilla as a drug has no standing. There is also probably no reason for perpetuating guaiac. It is nasty and probably inert. Thus the next Pharmacopeia could be relieved of sarsaparilla, its fluidextract, its compound fluidextract, and its compound syrup; and guaiac, its tincture, and its ammoniated tincture.

To decrease a profuse secretion of the mucous membranes of the air passages, larger doses of ammonium chlorid are valuable, given three or four times in twenty-four hours. Terpin hydrate is valuable, and atropin is a temporary symptomatic treatment, or, if deemed advisable, codein, heroin, or morphin may be given. The narcotics should, of course, not be used in prolonged catarrhal conditions without careful decision as to the necessity.

A most valuable drug in profuse catarrh of the upper air passages is terpin hydrate. It is useless to give this drug in solution when no solution will dissolve more than 2 grains to the teaspoonful, and 2 grains is too small a dose. The foolish, sickish, syrupy, sticky white pine, codein and terpin hydrate mixtures are very bad treatments for the stomach. Terpin hydrate in capsule, or in tablet (which should be crushed) in a dose of 0.30 gram (5 grains) every four hours, combined, if deemed advisable, with a very small dose of codein or heroin, is valuable treatment, and perfectly satisfactory.

Creosote expectorants will soon disturb the stomach and interfere with the pancreatic digestion, and, however valuable some may think creosote is in pulmonary tuberculosis, it is certainly entirely unnecessary to administer a poison, as is creosote in any form, to a patient with simple bronchitis. The permanent value of creosote in pulmonary tuberculosis is still a matter of doubt. The primary diminution of secretion and the primary stimulation of the appetite is almost invariably followed by a secondary condition of depression, bad digestion, loss of appetite, coated tongue, and irritation of the kidneys.

CARDIAC DRUGS

The drugs used to act on the heart and blood vessels are mostly of great importance. As veratrum acts very similarly to aconite, personally, I should be willing to have it removed from the Pharmacopeia. This would remove also its tincture and its fluidextract. As the use of cardiac depressants has become less and less frequent, and even aconite is very much less frequently used than it was, and as the coal-tar antipyretics have their place and usefulness in the first stages of acute disease, aconite could represent all of the cardiac depressant action that is needed. As previously stated, veratrina, its oleate and its ointment should be removed from the Pharmacopeia.

Convallaria and its fluidextract could be omitted, as its activity is very slight, and it is much inferior to other cardiac tonics.

As the alkaloid strychnin is never used as such, it being only used as one of its salts, it and other pure alkaloids could be omitted from the Pharmacopeia and the bulk of the Pharmacopeia would be less.

ANTISPASMODICS

The various drugs used as antispasmodics or cerebral stimulants, some of which have psychic effect alone, may perhaps be well continued in the next Pharmacopeia. It is doubtful if asafetida or valerian have any special activity outside of their carminative effect, but the former might be perpetuated in the pill. The tincture is not needed, and it is doubtful if the emulsion is of any value, even in children. If disagreeableness is looked for in the activity of valerian, the ammoniated tincture of valerian might be continued. The fluidextract and tincture are unnecessary. The zinc valeras might well be omitted.

Sumbul, its fluidextract and extract are not needed in the next Pharmacopeia, as an activity from sumbul is open to great doubt.

Cannabis indica is of such uncertain activity and strength that it would seem best to perpetuate only the preparations that are most likely to be of value, viz.: the fluidextract and the tincture. The extract is not needed.

An hypnotic that could well be omitted is sulphonal (sulphonmethanum). Its action is perfectly similar to trional (sulphonethylmethanum), and the trional is much more quickly and satisfactorily active.

Potassium bromid and sodium bromid are the only bromid salts that are needed. Ammonium bromid is disagreeable and carries with it no stimulant action from the ammonium. The lithium bromid is irritant to the stomach and has no different activity from the first two salts. The calcium bromid is also not needed. The strontium bromid is less soluble and thought to be better tolerated by the stomach, but, as larger doses must be given to obtain the bromin effect desired, it has no advantage over potassium or sodium bromid. Therefore the extra expense of this salt is not justified. Dilute hydrobromic acid is not needed, as it can cause all the disagreeable symptoms that potassium bromid can cause. Excessive doses of bromid are not now frequently administered, as it has been found that the same sedative brain effect may be caused in epilepsy by smaller doses of a bromid if sodium chlorid is removed from the diet. For prolonged use, the sodium salt is the best, as the sodium element is less depressing than the potassium element. To give bromid, for any reason, for any length of time is to acknowledge defeat in the treatment of the condition, as it is only symptomatic treatment, but at the same time, in epilepsy, at least, it is often a valuable one.

DRUGS USED AS SPECIFICS IN CERTAIN DISEASES

The drugs used for specific objects are not many, but cinchona in some form is a specific in malarial fever. The unnecessary number of preparations of cinchona has already been mentioned, and the list need not again be enumerated.

While colchicum is a specific in gout, the number of its preparations should be reduced. Either the root is better than the seed or the reverse; and certainly the Pharmacopeia wants the better. One is superfluous. If the wine of the root is considered the best liquid preparation, there is no need for the extract of the root, for the tincture of the seeds, the wine of the seeds, or the fluidextract of the seeds.

Though iron is a specific in any anemic condition, it is not necessary to offer thirty-one different preparations of it in the Pharmacopeia, to say nothing of the number of preparations that are official in the National Formulary. As it takes less time to enumerate the needed iron preparations, these may be mentioned as: ferri carbonas saccharatus, massa ferri carbonatis, pilulæ ferri carbonatis, *ferri hydroxidum cum magnesii oxido*, ferri sulphas, ferrum reductum, tinctura ferri chloridi, and syrupus ferri iodidi. Some of the other iron preparations may be valuable, but the above give a sufficiently wide range of choice. The saccharated oxid of iron (*Eisenzucher*) should be added to the Pharmacopeia. There is no reason that any organic iron should be added, as there is nothing that can be done with iron therapeutically that cannot be done with the inorganic salts.

Mercury, the specific against syphilis, has official, besides itself, fifteen preparations. Certainly some of the ointments, the mercurial plaster and the liquor arseni et hydrargyri iodidi are not needed.

COMMENTS

While the above discussion of the drugs of the Pharmacopeia is destructive, it is not wise here to discuss the new drugs that should be made official in the next Pharmacopeia. This is a subject for the decision of the Committee on Revision.

To show the similarity of opinion on the other side of the water, viz., in Great Britain, as to the drugs which a Pharmacopeia should represent, I once more repeat the list of suggestions with which these articles were introduced, and then add the suggestions of the Therapeutic Committee of the British Medical Association for the Revision of the British Pharmacopeia.

MY SUGGESTIONS

1. Let the new Pharmacopeia contain such drugs only as are of positive therapeutic value.

2. When a drug or preparation of a drug is prescribed that is not official in the Pharmacopeia of 1910, let it be officially declared that the standard of purity and the method of making preparations not recognized in the Pharmacopeia of 1910 be the standard set and the methods of preparation ordered in the last Pharmacopeia in which the preparation was recognized.

3. Let it contain such new drugs as have been proved of therapeutic value.

4. Let there be issued a supplement to the Pharmacopeia, in 1915, which shall make official such new drugs as have been proved to be of therapeutic value during the years of 1910-1915.

5. Let the 1910 Pharmacopeia give the most simple titles possible to all new drugs, especially to the synthetic drugs. If it is considered impossible, or inadvisable, to make an official title of a drug simple, an official abbreviation should follow the name of the drug.

6. Let the 1910 Pharmacopeia give official approval to only the best of the preparations of the official Galenic drugs, and not officialize the little used and useless preparations of these drugs.

7. Let the 1910 Pharmacopeia not give official approval of all of the known salts (of iron and mercury, for instance), but officialize only the best [The Committee on Revision can just as well decide this question as it can decide the new drugs that are worthy of a place in the United States Pharmacopeia, or as it can decide the strength a tincture shall have, and certainly the tinctures were radically changed in the 1900 U. S. Pharmacopeia, whether everyone was pleased or not.]

8. Let the average adult dose appear after each drug and each preparation of it, not the range of dose, i. e., minimum to maximum, as there is no exact under- or over-limit of dose. The dose is enough to accomplish the object aimed at by the prescriber, and all he cares to know is the average dose.

9. As the U. S. Pharmacopeia gives the official titles of drugs in Latin, it should also give the genitive after each title. This would be of special value in teaching the correct writing of prescriptions. It is not always easy to determine the declension to which a Latin noun belongs, or whether it may not be indeclinable.

10. Let the official preparations of a drug be enumerated under the title of that drug.

SUGGESTIONS OF THE THERAPEUTICS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION[1]

1. Crude drugs which contain an active ingredient possessing all the desirable actions of the crude drug might be replaced by this active ingredient if it can be obtained commercially and its identification and purity ensured. If such an active principle is official, the crude drug might be deleted. For example, jaborandi leaves, coca leaves, elaterium and many crude drugs yielding only volatile oils might be deleted.

2. Drugs and their preparations possessing no obvious and serviceable action should be deleted, e. g., arnica rhizome, cuspari bark, hemidesmus root, lupulin, mezereon bark, serpentary rhizome.

3. Unnecessary duplication of the preparations of a drug should be avoided. Thus one 1 per cent. solution of a morphin salt, or one solid extract of belladonna, is sufficient.

4. Purely diluent preparations of a drug should be avoided, so far as possible, e. g., solutions of potassium permanganate, almond mixture.

5. Substances which do not require to be defined officially for the protection of the practitioner, or the vendor or purchaser, e. g., prunes, figs, brandy, sherry, might be omitted.

6. Substances of no therapeutic importance, which are used only in the making of preparations and are not contained in the final products, should be deleted or transferred to an appendix, e. g., benzol, solution of iron persulphate.

Favorable Influence of Intercurrent Infections on Cerebral Disorders.—A Russian writer, L. Omorokoff, recently reported in the *Obozrycnie Psychiatric*, 5, four cases of serious psychoses in which intercurrent typhoid or acute tuberculosis restored apparently normal brain conditions. Two patients were young army officers, one with catatonic stupor for four years, the other with catatonia for six months. The mind gradually became clear in each with the onset of acute tuberculosis. Another patient was an epileptic boy of 14 with several seizures daily; the seizures ceased entirely during the three months following the onset of typhoid, but they then recurred as before. The fourth patient was a young woman with a severe form of insanity, the prognosis after sixteen months seeming hopeless, but reason returned then in the course of an intercurrent typhoid and recovery followed.

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[1] Brit. Med. Jour., 1908, ii, 319.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 Dearborn Avenue . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[*For other information see second page following reading matter*]

SATURDAY, FEBRUARY 5, 1910

THE DISSEMINATION OF TETANUS BACILLI

Tetanus is always looked on as the best example of a purely local infection with constitutional symptoms, in that the bacteria are supposed to remain strictly localized at the point of inoculation, while the diffusible toxin produced by them acts on the remote central nervous system. Undoubtedly, tetanus is as strictly localized as any other known infection, or more so, but there is increasing reason for believing that this localization is relative and not absolute. While cultures made from the blood and internal organs at autopsies on persons dying of tetanus have almost always failed to yield the tetanus bacillus, yet experimental work with laboratory animals has furnished evidence to several investigators that tetanus bacilli or spores may be readily found in the blood and viscera of animals that have received subcutaneous inoculations, sometimes persisting two or three months after inoculation. The usual failure to find them in the circulating blood during life or in the viscera after death in human cases is undoubtedly due to the technical difficulties that so often make the isolation of this organism unsuccessful, rather than to an almost absolute localization of the tetanus bacillus in the infection wound, for enough successful cultivations have been reported to make it seem probable that man does not differ so very widely from laboratory animals in this respect.

Two recent reports speak especially strongly in favor of this view. Reinhardt and Assim[1] made cultures from four fatal cases of tetanus coming to autopsy, and in two found the tetanus bacilli in tissues remote from the infected wound. In one case they were found in the regional lymph glands, the liver, kidney, lung and heart's blood; in the other only in the liver and spleen; in all four cases many other tissues, fluids and organs were carefully examined by favorable bacteriologic methods, but *B. tetani* could not be found in them. Richardson examined the inguinal glands of two patients with tetanus from infection of the foot, the glands having been removed at operation by Porter,[2] and found the tetanus bacillus in both cases.

The authors of both these creditable reports lay much weight on this evidence of the escape of tetanus bacilli from the inoculation wound and their presence in deeper tissues. Reinhardt and Assim believe that such migrated bacteria or their spores may remain latent for a long time, and give rise either to symptoms after the local injury has healed, explaining some cases of remarkably long incubation period; or they may become active under favorable conditions of lowered resistance or of trauma, and cause otherwise inexplicable cases of "idiopathic" or chronic tetanus. Porter and Richardson suggest that it may be desirable to remove the regional lymph glands when treating tetanus-infected wounds, since the bacilli are present in the glands as well as in the wounds. It should, therefore, be emphasized that the mere finding of tetanus bacilli in lymph glands and viscera does not signify much until we know whether these migrated germs were multiplying in the places where they were found, or were merely stragglers carried away by lymph or leucocytes, which happened to be isolated by the bacteriologist before they were destroyed by the tissues in which they had lodged.

The few successful inoculations obtained by Reinhardt and Assim, despite the extensive search and favorable technic, do not speak in favor of any multiplication of the transplanted bacteria having taken place. For this reason there should be experimental evidence in support of the procedure before the routine practice of removal of the regional glands in tetanus infection can be recommended. It is a well-established fact that injury to the tissues, and particularly the presence of blood clots, favors the multiplication of tetanus bacilli, and therefore by removing lymph glands which contain a few bacilli that could be destroyed by the intact glands we might establish conditions that would permit the few bacilli escaping us to take on vigorous growth. Before taking this additional step in the treatment of tetanus we need to know that the bacilli in the glands will do harm if left there, and, if so, that our efforts to remove them will not favor the bacilli rather than the host.

A NEW SPUTUM TEST FOR DISTINGUISHING BRONCHIAL FROM PULMONARY DISEASE

Within the last century the diagnosis of diseases of the lungs and bronchi has been revolutionized. The first and greatest advance resulted from the work of the two pioneers, Auenbrugger and Laennec. A tremendous stimulus to study of intrathoracic diseases was the ultimate result of their work, and in time the foundation laid by these two physicians was enlarged and their methods popularized by others, giving us the refined methods of physical examination which we have to-day. The second great advance toward more exact diagnosis came with the careful systematic examination of sputum, both macroscopic and (more especially) microscopic, to which impetus was given by Koch's discovery of the tubercle bacillus. Various other discoveries, tending to greater precision in diagnosis, such as the recognition of the *Bacillus influenzæ* of Pfeiffer, the tuberculin reaction, Roentgen ray and the finding of the *Paragonimus*

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[1] Centralbl. f. Bakteriol., Abteil. 1, Orig., 1909, xlix, 582.

[2] Boston Med. and Surg. Jour., Dec. 23, 1909, clxi, 927.

westermanii in the sputum in pulmonary distomiasis, have constituted important advances.

The newest of the methods for differential diagnosis of pulmonary and bronchial affections is that of Falk and Tedesko.[1] The test is based on the fact that salicylic acid and its salts may be found, after administration by the mouth, in any of the serous fluids (pleural, peritoneal, bursal, etc.) and, pathologically, in inflammatory exudates; but it is not found in glandular secretions, such as the saliva, or in the secretion of the bronchial mucosa. If found in the sputum it is believed to be evidence of involvement of the lung substance itself.

The salicylate is detected in the sputum by the addition of ferric chlorid, which produces a violet color. Certain substances always present in the sputum, however, interfere with the direct testing of the sputum. It is necessary to make the test by extracting with a volatile solvent, evaporating and testing the residue with ferric chlorid for salicylic acid.

No trace of salicylic acid could be found in the sputum in diseases limited to the bronchi; i. e., acute catarrhal bronchitis, the chronic bronchitis of pulmonary emphysema, bronchial asthma, purulent bronchitis, bronchiectasis, or the stasis-catarrh of cardiac disease. In lobar pneumonia, on the other hand, the salicylate appeared in the sputum in excessive quantities. In one case of central pneumonia (proved by autopsy), without physical signs, there was a strong positive reaction, while in another with bilateral pneumonic gangrene there was an intense reaction. Variable results were obtained in tuberculosis; in all cases a positive reaction was obtained, but its intensity did not run parallel with the clinical findings. In general, the authors found that the acute cases gave a more striking reaction than those of long duration.

From their studies, Falk and Tedesko believe that a negative reaction, when obtained repeatedly, is strong evidence that a disease process in the lungs is limited to the bronchi. A very strong positive reaction indicates an extensive inflammatory (exudative) process in the lung. In doubtful cases, in which the diagnosis lies between bronchitis and tuberculosis, a positive reaction indicates pulmonary involvement (tuberculosis). Furthermore, cases of central pneumonia, unrecognizable by physical signs, should be strongly suspected in the presence of a marked positive reaction.

PAUL EHRLICH

The progress of medicine, like that of other sciences, depends on the leaders, of whom there are two classes. To the one class belong those to whom the slow, steady and safe advances are due. These leaders are identified with established lines of research or practice and stand in the front rank of their profession, from the best elements of which they are not separated by a conspicuous gap. Their number is not small, and they usually hold the first positions in the gift of the profession, while they are, as a rule, the distinguished pupils of masters of their own type.

To the other class, however, belong those who precipitate, as it were, long-suspended and hitherto unperceived elements of knowledge, so that orderly truth seems to crystallize in the twinkling of an eye out of what appeared hitherto but a baffling jumble of facts. Men of this class are not born in every generation; in none are they numerous. Theirs are the master-minds; as a rule they have been, in the strict sense, nobody's pupils. It seldom or never happens that the first class of leaders remain unappreciated by their contemporaries; but not infrequently the second class of leaders find no followers in their own day and generation.

To the happy circumstance of the rise in rapid succession—and in part concomitantly—of several master-minds are the great advances in medicine of the present period due. The impulse of the genius of Pasteur, Koch, Metchnikoff and of Paul Ehrlich, has transformed medical science and practice and produced the most brilliant chapter in medical history. It is eminently true of all these men that they were no man's followers or pupils, and that their creations did not at once assimilate with the existing branches of medicine; neither were they or their teachings at first acceptable to those who were then leaders of medicine; but, none the less, medicine to-day bears the unmistakable impress of their work.

The four men present individual types. Koch is a monumental figure, and his contributions to medicine insure him the first rank in the history of medicine. Yet he belongs to that group of great minds who use up their great mental gifts within a brief period of time. His epochal work, indeed, hardly exceeds one decade. Metchnikoff's lasting contribution, on which his high eminence rests, is the theory of phagocytosis, which he has developed into a comprehensive doctrine. Pasteur's genius is less definable in a brief statement and was not only much broader in scope, of far more enduring metal, but also of fundamental basic quality; on it rests the entire superstructure of modern bacteriology in its broadest biologic sense.

Paul Ehrlich presents a phenomenon of still different type. He graduated in medicine in 1878 and within a year his epochal studies on blood corpuscles began to appear. In rapid succession the foundations were laid for a magnificent edifice in medicine, in which scores of investigators have found a permanent home. Not so Ehrlich. He has laid other and not less important foundations since then; and within a year—and thirty years after his first attainments—he has electrified the world by brilliant contributions to the science of experimental therapeutics.

To what branch of medicine does Ehrlich belong? Is it to immunity, or hematology, the therapeutics of the protozoa, or the investigations of malignant neoplasm? The comprehensiveness of his genius is exhibited by the many chapters in modern medicine in which his has been the master-hand to shape the form and furnish the content. Ehrlich was, from the first, nobody's pupil. His life-long interest in colors may have begun in his student days in Breslau, where his cousin, the celebrated and genial Weigert, then assistant to Cohnheim, was working on the staining methods which he later introduced into pathologic histology. But Weigert would have been the last person to claim mastership over Ehrlich. Even less does Ehrlich's work bear the marks of influence of Frerichs and Gerhardt, under whom he was clinical assistant. Ehrlich has never published anything that was a mere repetition of work done by others. Either he began with a new problem, or he made an old one new by giving it a fresh and original form. Ehrlich introduced new technical principles and made contributions to morphology and yet, apparently, he was never deeply interested either in the technical or morphologic aspects of his subjects. His interests centered in the functional aspects of his problems and in their more general connotations. Although he introduced the technical method of the differential blood-count into medicine, yet it was less the distinctions among the white cells than the classifications of the stains according to their chemical affinities and the functional significance of the cell-granules that interested him chiefly. Blood, dyes, chemical affinities are the elements that appear again and again in the course of Ehrlich's many investigations.

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[1] Falk and Tedesko: Neue Untersuchungen zur Sputumdiagnose, Wien. klin. Wchnschr., 1909, xxii, 954; abstr. in THE JOURNAL, August 21, p. 662.

Thus his fundamental work on blood corpuscles was followed (1880-81) by an investigation of toxic hemoglobinuria and the discovery of a method of studying the condition in living human blood. He now brought forward methylene blue as a means of studying bacteria, and soon after Koch announced the discovery of the tubercle bacillus (1882) Ehrlich invented a more perfect method of staining that organism and formulated the theory of the penetration of stains through bacterial membranes. His interest in dyes next led him to the discovery of the diazo reaction and to highly important studies on ocular fluorescence through the use of the mother substance of eosin. Next followed the remarkable series of studies (1884-85), by means of methylene blue, on the oxidations and reductions in the tissues, which were brought together in his fundamental work, "Das Sauerstoff-Bedürfniss des Organismus," and on the vital staining of nerves. The dawning of the ideas, later to be so rich in results, relating to receptors in cells and the unequal distribution of toxic and therapeutic substances in the body, came with these studies. The next period (1886-90) was one of less outward activity, but manifested an interest in therapeutics, since it was associated with Ehrlich's work on detoxication by sulpho-radicals, the alleviation of pain by means of methylene blue, and with studies on the cocain group, etc.

Ehrlich's connection with the Berlin Institute for Infectious Diseases (1891) gave a new impetus and direction to his work. The fundamental studies on antitoxic immunity with ricin and abrin were not only the first product of the new activity, but they led him into paths which he has not yet forsaken. It is of interest to conjecture how deeply these early studies on antitoxic immunity cut along the path through which diphtheria antitoxin was somewhat later to be sent into the world. This was also the period of Ehrlich's first incursions into the specific treatment of protozoal disease, for he introduced (with Guttmann) methylene blue in the treatment of malaria. Diphtheria antitoxin having been produced and found valuable, Ehrlich was chosen by the Prussian government to work out a method of standardization, the high importance of which choice cannot well be overestimated; for it was the uncovering of the complications of the structure of the antitoxins that led to the theoretical considerations regarding their compound nature and to the development of the side-chain theory of immunity (1897). This prolific theory was greatly extended in the next years through the studies on hemolysins which appeared from him and his associates. It is no matter what opinion one may entertain of the ultimate fate of the theory, since friend and foe alike will admit that in point of fruitfulness it stands unrivalled in all medical history.

The genius of Ehrlich is exhibited not only in his choice of subjects of investigation and the success with which, like a skilful conjurer, he helps himself with ingenious hypothesis, but, almost to an equal degree, by the instinct for leaving a field which is becoming barren. Hardly any one has lost so little time and energy in unprofitable byways of research and discussion. When the harvest has been reaped, he has always left the field to be gleaned by scores of lesser men. In 1904 Ehrlich took up the study of the experimental therapeutics of trypanosome disease which represents a revival of interest in dyes and at the psychologically and chemically propitious moment. For the discoveries in parasitic protozoology, on the one hand, gave a deep practical significance to the work, as the advanced chemistry of colors and of the organic arsenical compounds provided a basis for a wide scale of therapeutic experimentation. Ehrlich's success in this field has been as great as in any other he has trodden. Within the last period Ehrlich entered the arena of the investigations of malignant neoplasm, which center about the transplantable tumors of mice and rats, and here again he became the leader in the field. This last period is still the active one for him and the end of his endeavors has not yet come to view.

The value of Ehrlich's work has long been recognized and it is gratifying to learn that this recognition is taking a substantial form. Elsewhere in this issue is recorded the fact that the board of directors of the Rockefeller Institute for Medical Research has placed at the disposal of Professor Ehrlich $10,000 to further his investigations into the chemical therapy of the protozoon diseases. Paul Ehrlich is still comparatively a young man, not yet 56 years old. There is, therefore, good reason to hope that medical science and practice will owe him a greater and deeper debt than the large one already due him before he retires covered with honors from the field of his chosen work.

FLEXNER'S DENIAL OF ANTIVIVISECTION CANARDS

Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, has replied through the columns of the New York *Times* to the sensational articles recently published in the New York *Herald*, alleging that needless and uncalled for cruelties were inflicted on animals in the institute. To those who have followed the admirable work of the Rockefeller Institute, no vindication is necessary. The absurdity of supposing that men of the highest scientific attainments, recognized for their learning and culture both in this country and Europe, would devote weeks of time and would derive insane enjoyment from the needless torturing of animals, as was practically charged, is apparent to every one except the hopeless fanatic or the well-meaning but undiscriminating sentimentalist, who is not mentally capable of being guided by either common sense or ordinary evidence. Dr. Flexner's statement is given in full in General News and Comment in this issue. It is so conclusive and convincing as to require no further comment and so moderate and rational as to need no corroboration.

Evidently the efforts of the antivivisectionists are to be centered on New York in the hope of securing the passage of some kind of restrictive legislation in that state which can be pointed to as a precedent. It is not so strange that ignorant scrubwomen should set themselves up as authorities on scientific work as that misguided fanatics are willing to give credence to their garbled and indiscriminating statements. The most painful fact, however, is that great city newspapers, in order to be able to spread sensational headlines on front pages, will mislead the public by traducing an institution which is doing a splendid work, solely for the public good. At the time that Mr. Rockefeller established the hookworm commission the newspapers emphasized as one of his characteristics that he always carefully investigated any proposed scientific or philanthropic organization or purpose before he gave his money to it and that he never contributed to any object unless it could be shown that results commensurate with the expenditure could be secured. Is it possible that Mr. Rockefeller is contributing millions to support an institution in which brutal scientists and insane surgeons amuse themselves by inflicting needless pain on helpless animals? Such a conception of his shrewdness is not in line with popular ideas on this subject. Mr. Rockefeller knows that Simon Flexner and his colaborers have reduced the mortality in cerebrospinal meningitis —that scourge of the infant world—from 75 per cent. to 25 per cent., and perhaps Mr. Rockefeller considers that an institution that saves fifty baby lives out of a hundred is a good investment, no matter what it costs. Perhaps the mothers of the babies think so, too. But the New York *Herald* is willing to take the word of a scrubwoman that the Rockefeller Institute exists in order to gratify the brutal and inhuman instincts of men who are striving to save babies from death.

It is almost unbelievable that any newspaper would so far sacrifice its reputation to a desire for sensationalism as to print such a story as that which appeared in the New York *Herald*, December 27.

Medical News

ARKANSAS

Contract for Sanatorium Awarded.—The contract for the erection of the buildings of the Arkansas Tuberculosis Sanatorium, Booneville, have been awarded to an Ozark contractor for $26,564. The contract provides for the erection of an administration building, one ward room for 24 patients, two cottages each accommodating 8 patients, four cabins, two eight-room cottages, and five tent houses.

Society Meetings.—At the annual meeting of Sebastian County Medical Society in Fort Smith, Dr. Dred R. Dorente was elected president; Dr. J. Homer Buckley, vice-president; Dr. Clark S. Wood, secretary, and Dr. Charles W. Garrison, treasurer, all of Fort Smith.——Greene County Medical Association, at its meeting in Paragould, January 10, elected the following officers: Dr. Paul L. Dickson, Paragould, president; Drs. George T. Hopkins, Paragould, and Jones H. Lamb, Beech Grove, vice-presidents; Dr. Olive A. Charles Wilson, Paragould, secretary-treasurer, and Drs. Robert J. Haley, Felix M. Scott, and James G. MacKenzie, all of Paragould, censors.

CALIFORNIA

High License in Chico.—The city trustees of Chico have adopted an ordinance imposing a license of $100 per day on itinerant practitioners, with a penalty for violation of the ordinance of a fine of not less than $250 or imprisonment for not more than 90 days or both.

Arberry Sentenced.—Dr. John J. Arberry, San Francisco, whose trial and conviction for obtaining money under false pretenses was noted in THE JOURNAL, January 29, page 388, is said to have been sentenced to two years in the state penitentiary, San Quentin, January 21. A ten days' stay of execution was secured.

Refuse to Pay Local License.—Drs. Frank C. Newton, Daniel E. Osborn and J. A. O'Connor, St. Helena, are said to have been found guilty of violating the town ordinance by refusing to pay a license of $3 per quarter. The attorney for the defendants has applied for a writ of prohibition, claiming that the ordinance is unconstitutional.

GEORGIA

Society Meetings.—At the annual meeting of the Georgia Medical Society, held in Savannah January 11, the following officers were elected: Dr. Thomas J. Charlton, president; Dr. Joseph G. Jarrell, vice-president; Dr. John M. Sigman, secretary; Dr. Ralph M. Thomson, treasurer; Dr. John L. Farmer, censor, and Drs. Henry H. Martin and Thomas P. Waring, delegates to the state society, all of Savannah.——At the annual meeting of Fulton County Medical Society, held in Atlanta, Dr. J. Ross Simpson was elected president; Dr. Edgar G. Ballenger, vice-president; Dr. Richard R. Daly, secretary; Dr. Arnold H. Lindorme, treasurer, and Dr. Stephen T. Barnett, censor, all of Atlanta.——At the annual meeting of Richmond County Medical Society, held in Augusta January 5, the following officers were elected: President, Dr. William R. Houston; vice-president. Dr. James R. Littleton; secretary, Dr. George A. Traylor; censors, Drs. John C. Wright and Moses S. Levy; delegate to the state association, Dr. Noel M. Moore, and alternate, Dr. Albert A. Davidson, all of Augusta.

ILLINOIS

Physicians' Club Meet.—At the annual meeting of the Lincoln Physicians' Club, held January 13, the following officers were elected: President, Dr. William W. Houser; vice-president, Dr. Calvin C. Montgomery; secretary-treasurer, Dr. Harry S. Oyler, and trustees, Drs. Carl H. E. E. Rembe, Frank M. Hagans, and Lewis T. Rhoades.

Hospital Elects Officers.—The board of trustees of the Passavant Hospital, Jacksonville, at its annual meeting, January 18, elected the following officers: President, J. P. Loar; vice-president, S. W. Nichols; secretary, Dr. Carl E. Black; treasurer, F. E. Farrell; members of executive committee, Dr. Thomas J. Pitner and J. G. Ames, and medical trustee, Dr. Elmer L. Crouch.

Personal.—Dr. Samuel M. Wylie, Paxton, who was operated on for carbuncle at the Henrotin Memorial Hospital, Chicago, January 8, has returned home.——Dr. J. S. Alexander, Waverly, fell on the ice January 18, breaking his right hip.——Dr. Hugh K. Schussler sailed for Europe January 20.——Dr. P. S. Wiedman, Edwardsville, fell January 20, and sustained severe contusions.

Chicago

Fight Against Tuberculosis.—Under the head "Fighting Tuberculosis," the health department, in its current bulletin, details the methods and agencies employed in the local control of that disease.

Clairvoyant Fined.—Mrs. Ella Seibert, a fortune teller and clairvoyant, is said to have been convicted by a jury, January 18, of practicing medicine without a license, and to have been fined $100 and costs. The fine was paid.

Money for Charity.—By the will of Mrs. Francis E. Curtis, $30,000 is devised to the Presbyterian Hospital.——As the proceeds of a comedy presented at Sinai Temple under the auspices of Baron Hirsch Woman's Club, $1,200 was netted for the Winfield Sanatorium.

KENTUCKY

Personal.—Dr. Robert L. Bone, Madisonville, is reported to be critically ill with septicemia following an operation on the nose, performed in Baltimore during the Christmas holidays. ——Dr. Frederick A. Stine has been elected president of the Newport Board of Health.

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Hospital Elects Officers.—The board of trustees of the Passavant Hospital, Jacksonville, at its annual meeting, January 18, elected the following officers: President, J. P. Loar; vice-president, S. W. Nichols; secretary, Dr. Carl E. Black; treasurer, F. E. Farrell; members of executive committee, Dr. Thomas J. Pitner and J. G. Ames, and medical trustee, Dr. Elmer L. Crouch.

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Correspondence

Physicians, Proprietary Preparations and the Detail Man

To the Editor:—We are indebted to some of the big drug manufacturing firms for many excellent products, and in this country, where private capital, unaided by government subsidy, must find proper returns, no fair-minded person denies these firms the right of bringing their products to the notice of the medical profession.

This they seek to do through the advertising columns of reputable medical journals and by every form of printed circular, extract, reprint or written communication.

The individual practitioner can consider at his leisure such new preparations as interest him and seem to bear the stamp of genuine merit. If the product has been reliably made, has been tested pharmacologically, and has received the endorsement of men whose opinions carry weight, the clinician feels justified in using it in his practice. But even then, if he is wise, he will follow the poet's advice and "be not the first by whom the new is tried, nor yet the last to lay the old aside."

But the race is too swift, the dividends must be larger, and so the country is literally flooded with all sorts and descriptions of drugs and combinations of drugs which must be consumed and the detail man is evolved. If the plausible detail man succeeds in getting the physician to use his firm's goods on his representations alone, it would seem that the physician merely becomes an agent for the drug house, and not an intelligent, conscientious counsellor of the sick.

The other phase of this question, the effect on the laity of the endorsement by the physician of proprietary preparations, needs only to be mentioned in this connection.

Briefly, the method now employed by drug manufacturers and distributors of having a representative call on members of the profession to present the claims of their preparations is objectionable for several reasons:

1. The presumption is that the doctor needs instruction in pharmacology and therapeutics.
2. Even though the preparation sought to be exploited has merit, the time and attention grudgingly given by the busy physician is not sufficient to enable him to obtain the precise information he should have before experimenting with the drugs.
3. The vast majority of concoctions left in physicans' offices by detail men are utterly worthless.

Now, because some of the members of the profession do need instruction in materia medica, and admitting their deficiency are willing to accept the kind that is offered by any sort of untrained youth who will give them a ready-made formula with each half hour's tutoring, must all the rest who are bold enough to prescribe simple pharmacopeial drugs and N. F. preparations, whose merits stand proved, submit to this gratuitous bottled information from which it is only necessary for the druggist to remove the original label and place thereon the doctor's (that is, of course, the detail man's) instructions?

The Council on Pharmacy and Chemistry undertakes to lighten our burdens by thoroughly investigating certain of the vast number of new preparations, but of necessity the process of elimination is slow, and the drug houses are taking every advantage of this fact.

The men representing many of these firms are polite, deserving individuals, and our complaint is not against them, but against their employers. At least one county society, the Jefferson County (Ala.) Medical Society, seems to believe that the limit of endurance has been reached, and that patience is no longer a virtue, and has sought to give its members relief by the passage of the following resolutions, which place it unequivocally on record:

> *Be it Resolved,* That it is the sense of the Jefferson County Medical Society that the employment by its members of proprietary formulas in the administration of drugs be discountenanced, and that the members be urged to familiarize themselves with the drugs and preparations of the U. S. Pharmacopeia and National Formulary, which are in every way adequate to their needs. Be it further
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> *Resolved,* That the decisions of the Council on Pharmacy and Chemistry of the American Medical Association regarding nonofficial preparations be considered as final and binding in ou attitude toward them, and notice of the same is hereby given t all drug and pharmaceutical houses, in order that they may be save the expense, and ourselves the annoyance, of unnecessary interview with detail men. Further, be it
>
> *Resolved,* That the members of the society are recommended t have copies of this resolution printed in convenient form to be displayed in their offices or on cards to be presented to detail men.

The effect of such a movement in the locality concerned wil depend naturally on how general the endorsement of the spirit and the practical application of the plan suggested in the resolution.

However this may be, I believe that the time has come when the medical profession in justice to itself and the public at large must bring about a reform of the growing evil. The higher class firms, whose productions are most valuable, will readily assent to any reasonable plan adopted by the profession for correcting this condition, and the others will be compelled to follow suit.

Cabot Lull, M.D., Birmingham, Ala.

Improved Method of Applying Plaster Jacket

To the Editor:—In The Journal, January 8, is a letter by Dr. F. J. Cotton of Boston referring to an article of mine published in The Journal of December 25, on "An Improved Method of Applying the Plaster Jacket," and in which he says that the method described is precisely similar to a method described in Bradford and Lovett's work on orthopedics. I take exception to that. The methods are certainly similar in having the patient lie on a sling while the plaster is being applied, but the details have been worked out differently in the two cases. Dr. Cotton calls the old method an emergency method, so apparently it was not very satisfactory; but I think that in its new form the method will prove to be more than that. In the short experience I have had with it I prefer it to the methods of application in common use, with which I have had some experience and would like to have it given a trial by the profession generally. I may say that I never heard of a sling method of applying a plaster jacket before publishing my paper, although I searched all the literature at hand, as it seemed unlikely that such a simple method of application should have escaped the attention of the orthopedists. While Dr. Cotton is partly right in his statements, still my description shows differences which I regard as improvements on the old method and which decidedly modify it.

K. D. Panton, M.D., Vancouver, B. C.

The Public Service

Medical Corps of the Navy

Changes for the two weeks ended Jan. 29, 1910:

Foster, T. G., P. A. surgeon, commissioned P. A. Surgeon from Jan. 16, 1909.

Flint, J., P. A. surgeon, commissioned P. A. Surgeon from February, 1909.

Haynes, J. P., P. A. surgeon, detached from temporary duty at the Naval Hospital, Norfolk, Va., and ordered to continue other duties.

Bell, W. H., surgeon, detached from the Bureau of Medicine and Surgery, Navy Department, and ordered home to wait orders.

Anderson, F., medical director, commissioned Medical Director from Dec. 13, 1909.

Medical Department of the Army

Changes for the week ended Jan. 29, 1910:

Boak, S. Davis, dental surgeon, reported for duty at Army General Hospital, San Francisco.

Kierulff, H. N., 1st lieut., M. R. C., leave of absence extended 10 days.

Cutliffe, Wm. O., 1st lieut., M. R. C., ordered to accompany 2nd Battalion, 19th Infantry, from Fort McIntosh, Tex., to San Francisco, on the completion of this duty will return to his station.

Harris, Jesse R., capt., ordered to proceed to the Philippine Islands, for duty revoked, and instead Captain Harris is relieved from duty at Fort George Wright, Wash., and will proceed to Fort Gibbon, Alaska, for duty.

Grissinger, Jay W., capt., relieved from duty at Fort Gibbon, Alaska, and will proceed to Seattle, Wash., and report to The Adjutant General of the Army, for further orders.

Allen, John H., capt., relieved from duty at Fort Monroe, Va., and ordered to Fort Myer, Va., for duty.

Lamson, Theodore, capt., granted 30 days' leave of absence.

Snow, Corydon G., lieut., granted 10 days' leave of absence.

La Garde, Louis A., and Bannister, John M., lieut. cols., promoted to be Colonel, with rank from Jan. 1, 1910.

Kendall, William P.; Banister, William B.; Woodruff, Charles E.; Mason, Charles F.; Glennan, James D., majors, promoted to be Lieutenant Colonels, with rank from Jan. 1, 1910.

Shook, Jay R.; Vose, William E.; Woodbury, Frank T., Rutherford, Henry H.; Ruffner, Ernest L.; Brooks, William H.; Barney, Charles N.; Whitmore, Eugene R.; McAndrew, Patrick H.; Brownlee, Charles Y.; Murtagh, John A.; Ekwurkel, George M.; Van Poole, Gideon McD.; Reno, William W.; Buck, Carroll D.; Gosman, George H. R.; Koerper, Conrad E.; Allen, John H.; Patterson, Robert U.; O'Connor, Roderic P.; Noble, Robert E., and Van Dusen, James W., capts., promoted to be Majors, with rank from Jan. 1, 1910.

Vedder, Edward B., capt., relieved from duty at Fort Stevens, Ore., and ordered to the Philippine Islands for duty.

Miller, Albert L., 1st lieut., M. R. C., ordered to proceed from Fort Meade, So. Dakota, to Fort Robinson, Neb., for temporary duty.

Rhoades, R. H., dental surgeon, left Columbus Barracks, Ohio, en route to the Philippine Islands for duty.

Roberts, Ernest E., 1st lieut., M. R. C., will proceed to Omaha, Neb., for observation and treatment by Lieutenant Colonel John M. Banister, Medical Corps.

Brown, Orville G., capt., leave of absence extended 30 days.

Bryan, Ray W., lieut., relieved from duty as Surgeon of the transport *Thomas*, and ordered to Jefferson Barracks, Mo., for duty.

Glennan, James D., lieut. col., ordered to proceed to San Francisco, Cal., for assignment to duty in command of the Army General Hospital, San Francisco.

Kennedy, James S., major., relieved from duty in command of the Army General Hospital, San Francisco, and ordered to Fort Shafter, Honolulu, H. T., for duty.

Wadhams, Sanford H., major, relieved from duty at Fort Shafter, Honolulu, H. T., and ordered to proceed to San Francisco, and report to The Adjutant General of the Army, for further orders.

Webber, Henry A., major, leave of absence extended 15 days.

Public Health and Marine-Hospital Service

Changes for the week ended Jan. 26, 1910:

Wasdin, Eugene, Surgeon, granted 1 month's leave of absence from Jan. 22, 1910, on account of sickness.

Oakley, J. H., surgeon, granted 1 day's leave of absence, Jan. 21, 1910.

Von Ezdorf, R. H., P. A. surgon, granted 2 months' leave of absence from Jan. 15, 1910.

Vogel, C. W., P. A. surgeon, detailed to represent the service at the meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, Trenton, N. J., Jan. 20-22, 1910.

Amesse, J. W., P. A. surgeon, leave of absence for 2 months from Nov. 1, 1909, amended to read 1 month and 9 days from Nov. 1, 1909, and 21 days from Jan. 14, 1910.

Foster, Albert D., P. A. surgeon, directed to proceed from Amoy to Hongkong, China, for duty.

Manning, Herbert M., P. A. surgeon, relieved from duty at Washington, D. C., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Pettyjohn, Joseph, P. A. surgeon, granted 7 days' extension of leave of absence en route to station.

Wollenberg, R. A. C., asst.-surgeon, granted 25 days' leave of absence from Jan. 22, 1910.

Hamilton, J. H., acting asst.-surgeon, granted 3 days' leave of absence from Jan. 12, 1910.

Mason, Wm. C., acting asst.-surgeon, granted 3 days' leave of absence from January 26, 1910.

Ransom, S. A., acting asst.-surgeon, granted 2 days' leave of absence from Dec. 11, 1909, without pay.

Stewart, W. J. S., acting asst.-surgeon, granted 30 days' leave of absence from Jan. 18, 1910.

Tuttle, Jay, acting asst.-surgeon, granted 30 days' leave of absence from Feb. 14, 1910, with pay, and a further period of 22 days, without pay.

Walkley, W. S., acting asst.-surgeon, granted 11 days' extension of annual leave from Dec. 31, 1909, on account of sickness.

RESIGNATION

Assistant Surgeon Charles E. Wood, resignation accepted by the President, to take effect Jan. 31, 1910.

Queries and Minor Notes

Anonymous Communications will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE MERCURY COLPEURYNTER

To the Editor:—Recently I saw an article in The Journal advocating the use of the mercury colpeurynter. How is it used, and how does it act?

C. W. R.

Answer: This method of treating gynecologic disorders was originated by Pincus in 1905, and was described in The Journal, Feb. 27, 1909, p. 719.

APPARATUS FOR ENTEROCLYSIS

To the Editor:—I have devised a method for enteroclysis. What have you published on the method recently?

S. K.

Answer.—The following articles on this subject have appeared recently:

Murphy, J. B.: "Proctoclysis in Treatment of Peritonitis," The Journal, April 17, 1909, p. 1248.

Newman, S. E.: "Continuous Enteroclysis," The Journal, April 17, 1909, p. 1250.

Iverson, M.: "Proctoclysis," The Journal, June 12, 1909, p. 1926.

Kemp, R. C.: "New Container for the Preservation of a Constant Temperature of Saline Solution for Rectal Irrigation or Infusions," *New York Medical Journal*, Aug. 14, 1909; abstr. in The Journal, Aug. 28, 1909, p. 740.

Paterson, H. J.: "Continuous Proctoclysis," *British Medical Journal*, Aug. 28, 1909; abstr. in The Journal, Sept. 25, 1909, p. 1063.

Harbin, R. M.: "Apparatus for Proctoclysis at an Even Temperature," The Journal, Dec. 25, 1909, p. 2160.

Garratt, J. M.: "An Improved Saline Transfusion Apparatus," The Journal, Dec. 25, 1909, p. 2161.

"The Vacuum Bottle in Proctoclysis," The Journal, Jan. 22, 1910, p. 306.

TRANSPLANTATION OF ORGANS AND LIMBS

To the Editor:—Please give references to the work done in grafting parts of animals, and also information concerning the men engaged in these experiments.

J. A. Watson, Halifax, Nova Scotia.

Answer.—The following are the principal American articles treating of the transplantation of organs and limbs:

Carrel, A: Transplantation of Organs, The Journal, Nov. 25, 1905, p. 1615.

Carrel, A., and Guthrie, C. C.: Complete Amputation of Thigh with Replantation, *Am. Jour. Med. Sc.*, February, 1906; abstr. in The Journal, March 17, 1906, p. 831.

Carrel, A.: Results of the Transplantation of Blood Vessels, Organs and Limbs, The Journal, Nov. 14, 1908, p. 1662. Pictures were omitted from The Journal but were published in reprints.

Guthrie, C. C.: Physiologic Aspects of Blood-Vessel Surgery, The Journal, Nov. 14, 1908, p. 1658.

Carrel, A.: Transplantation of Members, *Revue de Chirurgie*, Dec. 10, 1908.

The work has been done mainly by Dr. A. Carrel, who is a member of the Rockefeller Institute for Medical Research, and by Dr. C. C. Guthrie, professor of physiology in the medical department of Washington University, St. Louis.

JONNESCO AND STOVAIN

To the Editor:—Some stir locally has been created by reports regarding stovain, which has had considerable prominence in our local paper. By reason of our surgical instrument section we are subscribers to The Journal and the writer, though a layman, is much interested in the articles it contains bearing on new remedies. Your journal is to us, as it should be to every dispenser of drugs, a real assistance and aid. Taking up the matter of stovain, we would like to ask whether there is any available way whereby we may arrive at a correct estimate of its value. Yesterday, Associated Press despatches contain an item from a Chicago physician who pronounces Dr. Jonnesco a "medical gold brick." The writer would like to get some literature bearing on the actual value of this drug. We failed to find any reference to it in the columns of The Journal.

——— & Co.

Answer.—Several issues of The Journal have contained information on the recent revival of spinal anesthesia by the modified method which Jonnesco uses, that is, the combination with strychnin. When Dr. Jonnesco first came to this country, The Journal took a conservative position in the issues of Nov. 27, 1909, page 1831, and Dec. 18, 1909, page 2117. A more definite pronouncement was made Jan. 22, 1910, page 293. In the last-mentioned issue, page 281, is an article on the subject. The above references also name various articles which have appeared in the world's literature, both on the general subject of spinal anesthesia, and on the special method of Jonnesco; these should provide anyone interested with the means of looking the subject up pretty thoroughly. Incidentally, it may be remarked that in the editorial of January 22, in speaking of drugs having a depressing effect on the heart and respiration, stovain was included. The manufacturers, however, claim that stovain exerts a tonic action on the heart.

QUININ TREATMENT OF PNEUMONIA

To the Editor:—Are large doses of quinin (60 grains) given in bronchopneumonia or in lobar pneumonia? How are such large doses given?

W. Cummings, Ryan, Iowa.

Answer.—The large doses of quinin have been given in the lobar form of pneumonia. As stated editorially in The Journal, March 17, 1906, the large doses are old, having been used by Juergensen and others over 30 years ago. The treatment was revived in recent years, chiefly by Dr. W. J. Galbraith of Cananea, Sonora, Mexico. The method of administration was described in detail in an article by Dr. Galbraith in The Journal, July 9, 1904, as follows:

"When the temperature has reached 105 F. or over, 60 grains of quinin sulphate are administered as the initial dose, followed in one hour by one-half this amount, or 30 grains, and the following hour by one-half the latter dose, or 15 grains, at which time I begin the administration of tincture of iron in doses ranging from 7 to 15 minims, depending on the date of the disease and the condition of the heart. If I see the patient on the first or second day of his attack, I usually begin with about 10 minims of the tincture of iron, increasing it one or two drops, or even more, each day up to the sixth or seventh day, unless the pulse remains full and strong."

"When the temperature is 104 F. or over, I give 50 grains of sulphate of quinin and follow the same course as above stated. When the temperature is 103 F., I give from 30 to 40 grains, following the course above stated."

The other side of the question is shown by Dr. W. C. Alvarez, also of Cananea, Sonora, Mexico, in a letter published in The Journal, June 13, 1908, in which he states that physicians there "who have seen the treatment used most now never use it in their private practice, and most emphatically condemn it." He states that during a three months' stay in Cananea in 1904 he had an opportunity to study this treatment and was impressed with its harmfulness. He says:

"As in most company hospitals, only the simplest case records were kept, and these by an untrained Mexican who occasionally puts down the temperature, pulse, food, bowel movements and the medicine given. I noticed that the dosage, which at first was 75 grains, was reduced to 40 and often to 20. The patients often vomited the quinin shortly afterward, and they sometimes could not stand the iron. Dr. Galbraith's statement that there is no crisis is correct, because a sthenic case is soon transformed into what resembles a bad case of typhoid, and recovery is very slow, with delayed resolution, empyema, femoral phlebitis and other sequelæ. . . . I have never seen the pulse benefited—though it often stands the treatment wonderfully—but I have seen the patient become nearly pulseless. I have also seen a big, strong young man take about three weeks for resolution after this treatment, and three days after his discharge from the hospital he dropped dead in his chair. A few months ago I saw a powerful young Mexican, who had every prospect of recovery, die after taking what I computed to be 40 grains of quinin. He had been doing well until the fourth day, when he took the 'specific,' which was followed by terrible tinnitus and a bursting feeling in the head. He became almost completely blind, was delirious all night and next day died after a few hours of stupor."

Society Proceedings

HOOKWORM CONFERENCE

First Southern Health Conference, held in Atlanta, Ga., Jan. 18-19, 1910

(Continued from page 395)

Symptoms of Uncinariasis

Dr. George Dock, New Orleans: Many writers on hookworm in America emphasize the large proportion of cases in which there are few or no symptoms. This was true of practically all the 60 recruits found to harbor hookworm out of 100 examined by Chamberlain. Recently, at my suggestion, Dr. Bass and Dr. Gage have examined the stools of medical students from various parts of the South, and they found as many as 30 per cent. in one class affected. Among these men, as among the recruits examined by Chamberlain, good digestion and full feeding doubtless have much to do with the relatively good condition of the hosts. It is interesting to note the number of worms in some of these cases. The average number in Chamberlain's cases was 16, ranging from one to ninety-nine. Dr. Bass in one case found 200. Even the smaller figure, 16, shows that the carrier could be a danger to those running the risk of infection, if he followed the habits of the country in any place where the soil and climate favor the life of the carrier, that is, in most inhabited regions of the Southern states. It may be assumed that among healthy looking people, from one-quarter to one-half have hookworm, and the only symptom is the presence of the eggs in the stools. The chief factors that tend to cause uncinariasis, or disease phenomena due to hookworm, other than absence of immunity, are early age and poor diet. The disease is most destructive in the young, the greatest amount of sickness and death occurring between ten and thirty years of age. Mild cases pass imperceptibly out from the latent cases, but when recognizable show a sallow skin and variations in appetite, digestion, and action of the bowels. There is sometimes pain in the abdomen. The muscles are soft and flabby; fatigue is easily brought on, so that laziness is often present, and mental indulgence is likely to be associated with it. In more distinct cases there is pallor, with hemoglobin sometimes lower than would be suspected from the color of the skin, i. e., about 60 per cent. Palpitation of the heart, dyspnea on exertion, dizziness and tinnitus, are often associated. The cachectic appearance is likely to be attributed to dyspepsia, or to the quality of food eaten, or sometimes to malaria, which may even be associated, or amebic dysentery; but the diagnosis can readily be made by examining the feces for ova.

In the moderate cases pallor and dyspeptic symptoms are more distinct, and often dominate the picture. Perversions of appetite occur, but are often concealed by the patient, so that the symptoms may not at once be striking. Nausea is frequent. Vomiting may occur. Tenderness in the epigastrium, or lower down in the abdomen, with a feeling of weight, is common. Dyspnea and palpitation of the heart are frequently present. There is often slight dilatation of the heart. Accentuated murmurs over the base and the great vessels and a frequent and weak pulse, with more or less dropsy, are present. Muscular weakness is sometimes pronounced. Dizziness, tinnitus, headache, and physical and mental torpor are frequently marked. Paresthesia, pains in the joints, and absent knee-jerks often occur in such cases.

In the severe cases the anemia, weakness and dyspepsia are more severe. Dropsy occurs in the subcutaneous tissue and abdomen, and other serous cavities. The appetite may be completely lost, or may be voracious, with pica, leading to the eating of earth, dirt of all kinds, rags, hair, etc. The dyspnea and cardiovascular symptoms are intense, as are the loss of strength and apathy. Impotence in men, and amenorrhea in women are almost invariable, yet the women may bear children, who are either rachitic or show marked cachexia, and in turn become subjects of severe uncinariasis. In some cases the severe symptoms develop suddenly, either from complete health, or from a milder form and quickly lead to death.

Bodily development is a point of importance. Severe uncinariasis in childhood causes a remarkable lack of development, so that a person of from 20 to 25 may resemble in height, lack of body hair, and of genital growth, and also in bony development, a child of 12 or 14. In these cases the face sometimes has a much older look, and often a characteristic tired and anxious expression, absent from some other trophic diseases, with retarded development, like myxedema. Puberty is delayed, and menstruation may not begin until 18 or 20, or not at all. Too little attention is paid to the dermatitis that in many, if not most cases, plays a part in the infection. While most patients give a history of ground-itch, dew-itch, or the like, few such cases are seen by physicians. But all should be seen by physicians, who should have in mind the possibility of hookworm, and search for ova up to ten weeks from the beginning. The color of the skin may vary from a slight pallor to a dead white, or a deep sallow, or marked lemon color, as in pernicious anemia. Pallor of the ears, nail beds and mucous membranes varies in the different degrees. The scleræ are usually white or bluish-white, and do not show the fine granular yellow, subconjunctival fat, so characteristic of pernicious anemia of idiopathic form. Emaciation is not always present, or it may be masked by edema. Mental and nervous symptoms are numerous and varied.

The abnormalities of the blood are striking and suggestive. The color of the skin and the general appearance of the patient suggest pernicious anemia, but the hemoglobin is always relatively low, and the eosinophils almost always high, in strong contrast to the former disease. Retinal hemorrhages occur in both diseases. Night blindness is comparatively frequent in hookworm anemia. As in some other diseases aneurism may be suspected, or valvular disease readily cured by proper treatment. The hookworm is the cause of the symptom directly or indirectly. It must be sought for by searching for its ova, which, even in mild infections, can be found by a brief search. All other possible causes of disease, such as malarial parasites, amebas, other intestinal parasites, and organic diseases, must be searched for by proper methods.

Treatment of Hookworm Disease

Dr. H. F. Harris, Atlanta, Ga.: Fortunately the treatment of hookworm disease is exceedingly simple, and if persisted in is always satisfactory. In most diseases the physician has to content himself with attempting to combat the symptoms of the malady from which his patient is suffering, there being in the vast majority of instances no specific treatment. It is unfortunately true that the same poisons that kill the living, disease-producing agencies in nearly all instances have the same effect on the human organism. In those cases, however, in which the more highly organized animal parasites occur in the human intestine we have several drugs that kill the infective agent without seriously disturbing the general health of the patient, and most happily the hookworm is one of the organisms that is most easily killed and removed in this way. The diagnosis having been established by microscopic examination of the feces, on the day before the treatment is to be begun the patient is advised to eat little dinner and no supper at all. Late in the afternoon he is given a full dose of calomel, the amount varying from 2 to 10 grains, depending on the age and strength of the patient. Castor oil could perhaps be administered with safety, but inasmuch as all oily substances dissolve and make more readily absorbable the thymol which is to be given on the following day, and as the absorption of any considerable amount of this substance will produce poisonous effects, it is generally advisable to leave this drug out of the treatment altogether. If the calomel acts freely during the night no other purgative need be administered on the following morning, but if it should not do so a full dose of Epsom salts in hot water should be administered as soon as the patient wakes up. After the bowels have thoroughly acted finely powdered thymol in capsule is then given, the quantity depending on the age and strength of the patient. It is perhaps a good rule to be guided by the apparent age of the individual who is to be treated rather than that stated, as many of these unfortunates appear as much as 6, 8 or 10 years younger than they are in reality. The dose of thymol should be divided into two equal parts, the first half being given at once and the second at the expiration of an hour. Following the administration of the medicine the patient should be instructed to remain in bed, and lying on the right side may perhaps more or less assist in permitting the drug to pass quickly into the intestine from the stomach. The amount that should be given is as follows: Up to 5 years of age, from 7 to 10 grains; from 5 to 10 years, from 10 to 20 grains; from 10 to 15 years, from 20 to 40 grains; 15 years and over, 40 to 60 grains. In advanced age the quantity should be somewhat less than during middle life. It is much to be preferred that the physician should always take into consideration the exact age and strength of his patient in administering this drug, it being a rather bad practice to prescribe arbitrarily different quantities of the drug between certain ages.

The patient should be allowed no breakfast and no dinner on the day of treatment. I permit a cup of coffee one or more times during the day, but nothing in the nature of food should be allowed. If the patient experiences no ill effects from the thymol, it is well to put off the administration of a laxative until 4 or 5 o'clock in the afternoon, at which time some saline should be administered in hot water. It is well at this point again to caution against castor oil. After the bowels have acted well the patient may be allowed to have food. When the treatment is carried out faithfully in the way just described I have rarely found it necessary to repeat it. It is, however, well after a couple of weeks to make another thorough examination of the feces, and should the microscope reveal the presence of eggs the treatment should be repeated, and this should be done over and over again until exhaustive examinations of the feces show by absence of the eggs of the parasite that all the worms have been expelled.

There are still other drugs that are more or less employed for the purpose of killing this parasite, betanaphthol especially being employed by many physicians. I have never used it, but it is said that it acts quite as well as thymol when administered in the same quantity. Dr. A. G. Fort, of Lumpkin, Ga., states that after considerable experience he prefers it to thymol as he considers it less dangerous. When I first began the treatment of this disease I made it a rule to give iron and tonics following the administration of the thymol, but I was soon convinced that these adjuvants were of no particular value, the patient recovering just as quickly without as with them. This being the case, it appears inadvisable to give drugs of this class to which the patient would be apt incorrectly to ascribe his cure.

The Educational Campaign Against Hookworm in Texas

Dr. W. M. Brumby, Austin, Tex.: The discovery of uncinariasis in Texas dates back to 1895 when Dr. Allen J. Smith, then professor of pathology in the University of Texas, isolated the ova in a male patient in Galveston. Later, in 1902, the same species of ova were demonstrated in an Australian sailor hailing from Mexico. The announcement by Dr. Charles Wardell Stiles of the *Necatur americanus*, and his paper before the Texas State Medical Association in 1903 marked the beginning of interest among physicians in the state. This, however, does not represent the introduction of hookworm disease in Texas, for an examination of the entire student body of the Texas State University in 1902 revealed the parasite in 10 per cent. of the students, who represented every part of Texas. Recent investigation revealed the infection of 31 per cent. of the male students examined in one of the state normal institutes. The students there are preparing to become teachers, are necessarily advanced scholars, and usually represent the most intelligent class of students. Little or no outward manifestations of the disease was present in any of those infected.

The high, dry, arid regions of the northwestern and western sections of Texas contraindicate a widespread infection; the parasite has been demonstrated as far north and west as Hunt county near the northern boundary of the state, and that, too, in the black land belt. The state bacteriologist has found repeated specimens in 22 counties in the southern and eastern part of Texas and those intervening counties being of similar soil, temperature, and climatic conditions the assertion is warranted that every county in Texas east of the ninety-seventh degree of longitude and south of thirty-fourth degree of latitude is more or less infected with hookworm. This section represents fully one-half the population of the state, and portrays the urgent necessity of persistent and widespread measures for the eradication of this disease in Texas.

As an evidence of the lack of attempt of prevention of soil pollution in the rural districts, the state bacteriologist, in a recent trip through the eastern part of Texas counted from the car window one hundred cabins and huts along the railway, and only five of that number had even an open back closet. Our people, as is no doubt the case throughout the South, do not appreciate the importance or seriousness of this disease. This lack of information is not confined to the masses, for we have reason to believe that many of the resultant anemias and sequelæ of uncinariasis are being treated by physicians at the present time as chronic malaria, tuberculosis, and other chronic maladies.

The only systematic endeavor to establish the approximate degree of infection in any given locality was with the aid of the teachers in the public schools in Anderson county. This is a county in the center of the hookworm area and is of mean soil and climatic conditions, and, therefore, may be regarded as an index of the real situation. Of the pupils examined 25 per cent. were found infected although quite a number of pupils were from a city with a fairly good sewer system. The method of procedure was to provide each teacher with a pamphlet on symptomatology, and instructions for collecting specimens, and request her to furnish specimens of stools from a uniform percentage of children under her care showing the most marked symptoms of the disease. The method proved very successful with those teachers who appreciated the possible benefits of science and humanity sufficiently to give us the desired cooperation, for their diagnosis was good as the resulting figures will show. Even in this work we have been hampered for lack of sufficient funds to gain accurate information as to the prevalence of the disease in the hookworm zone.

The State Board of Health has had a reprint of two of Dr. Stiles' articles published, as well as pamphlets prepared by the board, and these have been distributed by the thousands. In addition a list has been compiled of every microscope in the state and the services of its owner enlisted. These individuals have promised aid and have already done much good in their individual investigations, but we have been unable to take advantage of such opportunities and the effort from this source has been limited to the report of but a few localities. Efforts have been limited to educational work, for we recognize the importance of widespread instruction to every locality before we can hope to adopt compulsory measures for the prevention and cure of this disease. We have given lectures and addresses to many of the medical societies, the state teachers' convention, to various schools and mothers' clubs, presenting display cards something on the order of the tuberculosis exhibit, with interesting pictures and mottoes illustrating the ova and larva magnified, the subjects themselves, representing the methods of infection, practical fly-protected outdoor closets and instructions on symptomatology, prophylaxis and treatment. The efforts at educational work as with the investigations has been limited because of the lack of proper appropriations. It is to be hoped that the stimulus of Mr. Rockefeller's munificence and the educational work of the commission will result tenfold in the next three years in augmenting public health appropriations in all southern states.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Fourth Annual Meeting, held at Albany, Jan. 25-26, 1910

The President, Dr. Charles G. Stockton, Buffalo, in the Chair

PROCEEDINGS OF THE HOUSE OF DELEGATES

The House of Delegates met January 24, with Dr. Stockton presiding.

President's Address: Betterment of the Society

Dr. Charles G. Stockton, Buffalo: Some systematic plan should be adopted to increase the membership and thus widen the influence of the society. A committee might be appointed to devise means of increasing the interest in county societies, and cooperation with the committee on scientific work would prove advantageous. Accordingly I recommend that a committee be appointed, with a man from each county, to consider and report on this matter. I also recommend that the society begin a propaganda of education to take steps to introduce a pure food law which shall be complementary to the national law.

Report of the Committee on Public Health

Dr. John L. Heffron, the Chairman, read this report:

The committee has interrogated the 57 county medical societies in the state concerning local conditions pertaining to the public health. Replies have been received from only 21. Eight of these, viz.: Albany, Greene, New York, Otsego, Schoharie, Suffolk, Tioga, and Westchester, report conditions that are satisfactory. From the remaining 13 there are evidences of interest in the pollution of water courses by sewage, in the securing of pure food supplies, including milk, and in adequate provision for the care of the tuberculous poor.

These are all vital questions and must remain the subjects of serious discussion until the public is secured from their evils.

POLLUTION OF WATER

The question of the pollution of streams and lakes that are the sources of water supply to communities is a state and national one. Individual communities have been in the habit of disposing of the sewage in accordance with the mechanical law of least resistance, and have used for sewage disposal natural water courses that have flowed from them with perfect impunity, thinking nothing and apparently caring nothing about other communities further down the streams. Manufacturers have pursued the same course, until now it is safe to say that no water sheds in the state are free from pollution, except only those few over which the state has granted especial guardianship to individual cities. By such usage for a long period of time communities and manufacturers have claimed to have acquired certain legal rights to continue such a course, and the present law of the state is inadequate to compel them to stop this practice, however clearly proven it may be that it damages the health and prosperity of other towns and individuals.

By the act of 1903 the inauguration of new sewage disposal systems, by the use of natural water courses and the establishment of new manufacturing plants along water courses that would pollute the streams is put within the jurisdiction of the commissioner of public health and can be controlled. But as the law now stands the commissioner of public health has no jurisdiction over those who were polluting water courses prior to 1903 and who continue so to do. This is a grave defect in the law and is the cause of the persistence of many cases of the communicable diseases capable of transmission through water, and, indirectly, through milk and other food supplies like the green vegetables and fresh fruits that are rinsed in running tap water. In the recent conference of sanitary officers of the State, Professor Sedgwick, of the Massachusetts Institute of Technology, spoke of the sewage pollution of Niagara River and of the tremendous death rate from typhoid fever in Niagara Falls, and properly classified such pollution as a matter of interstate and international importance.

During the last session of the state legislature an amendment to the health law was introduced in both houses which gave the commissioner of health, with the approval of the attorney-general and the governor, power to order out of water courses pollutions that are a menace to health or which constitute a public nuisance, howsoever long such pollutions may have been carried on with impunity.

The committee recommends:

> That the Medical Society of the State of New York declares its opinion that the public health is endangered by the pollution of water courses, and that the legislature should at once so amend the health laws as to make such pollution amenable to the control of the commissioner of public health under proper safeguards.

PURITY OF FOODS

The question of the purity of foods has received much needed attention in recent years and has again come prominently before the public during the past year.

The earnest presentation by the medical profession of the subject of the adulteration, the sophistication and the preservation of food stuffs by the use of harmful drugs, supported by the press and by the people, secured the enactment of a law popularly known as the Pure Food Law. In the nation and in the states the provisions of this law have been carried out with reasonable efficiency, though with a constant fight with some manufacturers and packers because of their criminal greed. In the packing of meats and the manufacture of meat products, fraud had become so general that the reputation of the nation was at stake, and it became necessary to secure legislation by which the inspection by a government official of the material used and of the methods employed was instituted. Such inspection has produced salutary changes and little complaint is longer heard of the quality and purity of these products. The increasing cost of food supplies and the increasing difficulty in securing domestic service, from both of which evils there is no apparent relief, make it more and more important that we should be able to depend with confidence on the commercial food kitchens of the country. Almost no day passes but accounts appear in the newspapers of wholesale poisoning from the use of canned foods. Such illnesses and deaths are wholly preventable. Their occurrence is a crime, and they disgrace our country. They menace the canning industry. Only recently the health officer of a city is reported in the papers to have said that no canned goods are safe. Such a sweeping condemnation is not warranted. But the converse of this proposition ought to be true. It is the duty of a government that has undertaken to protect the people to make universally true the statement that all canned foods are safe. To accomplish this there is demanded the same searching investigation of materials used and methods employed in the canning industry as became necessary to save foreign and domestic markets for American meat products.

There is not, at present, knowledge concerning the physiologic action of any of the antiseptic drugs used as food preservatives which is sufficiently full and convincing to warrant authoritative statements. On the other hand, the conclusions published by the special commission authorized to investigate the effect of benzoate of soda on the human economy are at variance with the hitherto recorded experience of the medical profession. That statement alone indicates the necessity of the withholding of the seal of government approval of the unlimited use of this or any other antiseptic drug until this important question is settled so definitely that the medical profession shall accept the conclusions without any hesitation whatsoever. The medical profession has always stood as a bulwark to defend the people against that which is inimical to health. It has no quarrel except with those who practice fraud and deceit for their own gain and with those who are criminally ignorant or careless.

The committee recommends:

1. That this society respectfully requests the President of the United States and the Secretary of Agriculture to secure an amendment to the national Food and Drugs Act by which the use of antiseptic drugs in canned fruits and vegetables and in all preparations from fruits and vegetables designed for human consumption shall be prohibited, and,

2. That the inspection of the commercial food kitchens of the United State by government officials, for the purpose of insuring the use of sound materials, cleanliness of methods, and compliance with the law concerning adulterants and the use of drug preservatives, be made obligatory.

3. That Congress be and is hereby urgently requested to institute an investigation with reference to determining in what additional particulars the Food and Drugs Act, as now construed and enforced, fails to afford adequate protection to the American people.

4. That this society respectfully urges on Congress and the Senate of the United States the organization, under a single bureau to be known as "The Bureau of Public Health," of all the offices and agencies now having duties in any way connected with the preservation of the public health except only those offices having to do with the protection of the health of the army and navy.

With such a bureau established it will be more easily possible to properly correlate the public health departments of the nation, the states and individual communities in the states. Such a correlation is desirable and necessary, for many of the problems confronting many local boards of health have a scope which is interstate and national in extent.

STATE CONTROL OVER LOCAL BOARDS OF HEALTH

Without waiting for the consummation of such a plan in its entirety, it seems desirable to secure in our own state a closer relation between the local health authorities and the state commissioner of health. Local boards of health and health officers are at times influenced to neglect of duty by personal considerations. Charges of favoritism and of persecution are not uncommon, and the smaller the community the greater becomes the influence of personal consideration. At present the public health law gives little control to the state department over local boards. In cases of inefficiency and neglect of duty on the part of local boards the state department should have the power to act for the benefit of the people, as provided for in the enforcement of the laws in other departments. Last year a bill was introduced into the assembly and senate to establish a school of sanitary science at Cornell University. It passed the assembly but did not reach the senate. Your committee favors a general bill, if one is needed, which would encourage every university having a college of medicine to inaugurate a course leading to the degree of doctor of public health. It recommends that this society disapproves of the appropriation of state moneys for the establishment of any course in the university which is not solely under state control.

There never was a time when interest in preventive medicine was greater than now. It is the subject of frequent articles in magazines and of public addresses. The contributions for the scientific investigation of many diseases that affect the public were never so munificent nor so numerous. A true spirit of research is being fostered in many students of medicine in this country, and the conscience of the people is getting awakened. Despite our carelessness in the handling of infectious diseases, the problems of which are already completely solved, like smallpox, typhoid, diphtheria and tuberculosis, there is a substantial gain. How much greater that gain might be to the state is known only to those who recognize the present difficulty in carrying into effect the beneficent provisions of the public health laws.

Report of the Secretary

DR. WISNER R. TOWNSEND, New York: The council at its May meeting passed a resolution permitting members who joined their county societies after Oct. 1, 1909, to have their state assessments credited to 1910, if they so desired; 144 took advantage of this provision, so that the membership of 6,370 will be increased on Jan. 1, 1910, to 6,514, a gain of 348 over the membership on Jan. 1, 1909. Deducting the 209 reinstated members of 1908 from 374 dropped Dec. 31, 1908, the loss is only 165 for that year.

The increase in society membership for the years 1908 and 1909 should encourage the county societies to make still greater efforts in the future. The 250 or more who each year drop out for various reasons cannot be avoided, as death alone claims nearly one-third. The percentage of resignations and dropped members is very small compared with the large membership, and shows clearly the excellent work done by the county officers, especially the secretaries and treasurers.

Report of the Counsel

JAMES TAYLOR LEWIS, counsel for the society: No year in the history of organized malpractice defense has been so fruitful of results in the stamping out of blackmailing cases as the present one. During no year has my work met with such enthusiastic support by the medical fraternity as during the one just past. More cases have been tried than in any other year, and while it is true that the number of cases brought has slightly increased, yet that is easily accounted for by the fact that malpractice defense has during the past year become generally known in the profession, and I have been called on for that reason to assist more members whose cases in other years may have gone to other attorneys, or may have been settled. The fighting spirit and determination not to be blackmailed by unscrupulous patients has manifested itself on many occasions, all of which is most satisfactory. Eighteen cases have been actually tried by me, but I have had the misfortune to lose one case so far as a verdict is concerned, and in this litigation a new trial has been asked for on errors committed by the trial justice, and which has been held in abeyance for several months. I have absolute confidence in the ultimate success of this case also. I began the defense of malpractice actions on Sept. 1, 1900. Since that time over 250 cases have come before me, and of that number 138 have been actually tried, none finally lost, and one now on appeal. Not one dollar of damages has ever been paid. This is a result not even hoped for, and the success of organized malpractice defense in the hands of state societies has been demonstrated. It is interesting to note that during the past year a majority of the cases begun are by women plaintiffs. It is difficult to determine just what this means, unless it is that the attorneys bringing them hope to enlist the sympathies of a jury, irrespective of whether or not there is merit in the patient's claim.

Report of the Committee on Experimental Medicine

This committee, in cooperation with the committee on legislation and with public-spirited men throughout the state, labored successfully to prevent the passage by the legislature of 1909 of two bills intended to regulate experiments on living animals. Each bill sought to impose restrictions which were against the public welfare on the performance of scientific observations. The hearing on both bills was held before the judiciary committee of the assembly on March 23, 1909, and before the judiciary committee of the senate on March 24, 1909. At both of these hearings arguments were presented in favor of the bills by their friends, and in opposition to the bills by members of the committee on experimental medicine and others. Subsequent to the hearings the assembly committee decided not to report either bill, while the senate committee took no action. This result represents a greater victory than that of the previous year, when the assembly

PASSED

College	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1907)	75
Harvard Medical School, Boston	(1907)	86.7
St. Louis University	(1909)	83.4
Jefferson Medical College	(1908)	79.6
Medical College of Ohio	(1907)	84.4
University of Pennsylvania	(1908)	82.5
Tokio Medical College, Japan	(1906)	76

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Medical School	(1890)	Iowa
Central College of Physicians and Surgeons	(1904)	Indiana
University of Kansas	(1907)	Kansas
Cornell University Medical College	(1899)	New York

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Vital Statistic Legislation a Necessity for Suppression of the Midwife Evil

Considerable interest is being manifested at present in Europe regarding the care of parturient women by midwives. Birth records show a high percentage of puerperal mortality and morbidity in women under their care. A prominent gynecologist of Berlin, thinking that midwives were comparatively unknown in the United States, has recently written us asking for the percentage of deaths in obstetric cases in the United States in order to institute a comparison between puerperal mortality in this country and Europe. We have been forced to write him that statistics of any value on this subject are not available, owing to a lack of proper state vital statistic legislation. Midwives conduct labor cases in every state in the Union and an investigation a few years ago showed that not more than a dozen states had any law whatever regulating or restricting them and that even in the states where such laws existed, they were inadequately enforced. Midwifery is not so well regulated in this country as in Europe and yet the harm done is probably less, since midwives are not so numerous, it being more common here, except among the recent immigrants, to employ physicians to attend labor cases. The evils resulting from ignorant midwives are well known to physicians, but more education of the public and of the state legislatures will be required before midwifery is properly restricted. Its abolishment under present conditions is probably impossible.

An investigation made in Chicago in 1908 (The Journal, April 25, 1908, p. 1346), showed that there were at least 500 midwives in the city and that 40 per cent of all labor cases were conducted by them. In one immigrant colony, all of one nationality, 86 per cent. of births were attended by midwives. Many of these women are also engaged in criminal practices. In New York City among 500 midwives, only 40 per cent. had had any adequate training, while, on account of lack of supervision as well as personal carelessness, not over 10 per cent. were actually capable and reliable.

The mortality figures of the Census Bureau show that in 1908, the deaths from childbirth in the registration area (comprising 51.8 per cent. of the population) comprises 7,344 women, or 16.3 per 100,000 of population, and that from 1901 to 1905, the average death rate from this cause in the same area was 14.3 per 100,000. Under this head are included accidents of pregnancy, puerperal hemorrhage, and other accidents of labor, puerperal septicemia, puerperal phlegmasia alba dolens, and other puerperal accidents and diseases. As no figures are available as to the number of midwives and the number of cases attended by them, or as to how many deaths among their patients were preventable, it is impossible to estimate the percentage of deaths attributable to improper management in the hands of midwives. The total mortality due to ignorance and actual criminal practices is beyond conjecture. It is probably very large.

The present condition of our national vital statistics is a national disgrace. The Committee on Medical Legislation of the American Medical Association is carrying on a campaign for an adequate and uniform state law on vital statistics. Efforts are being made to extend the registration area by adopting this model bill in a few states at a time. With more complete vital statistics, it will be possible to show the damage wrought by ignorant attendants on parturient women and with these figures at hand, the campaign of education may then be extended and agitation for the proper training of midwives may be undertaken. The result of such regulation will unquestionably be an enormous improvement in the mortality and morbidity of obstetric cases.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
Bowling Green, Kentucky

[*The Director will be glad to furnish further information and literature to any county society desiring to take up the course.*]

Sixth Month—Third Weekly Meeting

Diseases of the Gall-Bladder and Ducts

Simple Cholelithiasis: Diagnosis, pain, colic, gastric symptoms, jaundice, fever, tumors. Differential diagnosis.

Complications of Cholelithiasis: (a) Obstruction of cystic duct. (b) Obstruction of common duct. (c) Remote effects, (1) acute perforation, (2) fistulæ, (3) strictures of ducts, (4) adhesions and bands, (5) involvement of pancreas. Symptoms and diagnosis of each.

Non-Calculous Cholecystitis: (a) Acute phelgmonous, (b) subacute, (c) chronic. Diagnosis and surgical treatment of each.

Carcinoma of Gall-Bladder and Ducts: Frequency, relation to gall-stones. Symptoms and diagnosis in (a) gall-bladder, (b) common duct.

Medicolegal

Examinations Should be by Impartial Physicians Appointed by the Court

The Court of Appeals of Kentucky says, in Keller & Brad[illegible] Co. vs. Berry (121 S. W. R. 1009), a personal injury case brought by the latter party, that when the plaintiff was on the witness stand the defendant company proposed to have him examined then by two physicians whom it had present as witnesses. The plaintiff declined to submit to the examination unless required to do so by the court. The court offered to have him examined by an impartial physician to be named by the court. The defendant company thereupon withdrew its motion for an examination. There was no substantial error on the part of the court in this matter. The court has a discretion in such matters, and it did not abuse a sound discretion in refusing to require the plaintiff to submit to a personal examination by physicians of the defendant's company's own choosing. Such examinations should always be made by some impartial physician appointed by the court.

City Empowered to Create Office of Bacteriologist

The Supreme Court of Alabama says that State, on the relation of *Sholl and others, vs. Duncan* (50 So. R. 265) was a proceeding challenging the right of the said Duncan to exercise the functions of city bacteriologist, created by an ordinance of the city of Birmingham. The controversy related to the right of the municipality to create an office with the powers and functions conferred by the ordinance; the argument being that the ordinance was in contravention of the laws of the state, which was to say that Duncan, acting under the color of the ordinance, was wrongfully exercising the functions which, under the general law of the state, pertain to the health officer of the city of Birmingham.

It was conceded that Section 142 of the Alabama act of Aug. 13, 1907, confers on municipalities the power to adopt ordinances to prevent the introduction of contagious, infectious or pestilential diseases, to establish and regulate a sufficient quarantine not inconsistent with the laws of the state, to adopt ordinances and regulations to insure good sanitary conditions in public and private places, and to prescribe the duties and fix the salaries and compensation for such health officials as they may deem necessary. This section is an amplification in one direction of the general power conferred by Section 80, by which municipal corporations are given power to adopt ordinances, not inconsistent with the laws of the state, to carry into effect or discharge the powers and duties conferred, and to provide for the safety, health, prosperity, morals, order, comfort and convenience of the inhabitants of the municipality.

Bacteriology is the science which investigates bacteria and other microbes, especially their life history and agency in the production of disease. Ordinances providing for bacteriologic investigation and research have a just and reasonable, not to say necessary, relation to the health and safety of communities. It will not be denied, therefore, that the general and special powers conferred by the two sections of the act last referred to are amply broad to justify the ordinance of the city of Birmingham creating the office of city bacteriologist.

Nor does the court consider that the act amendatory of the health and quarantine laws of the state, postdating the act of Aug. 13, 1907, known as the "Municipal Code Law," by two days, dealing with the subject of health and quarantine, must be held to repeal the power to appoint a bacteriologist, with such duties as are enumerated in the ordinance, which power is fairly implied in the municipal charter act.

The health and quarantine law and the municipal code law cover in part the same field so far as cities and towns are concerned. The fact that they were passed by the same legislature, and so nearly together, creates a strong presumption that no conflict was supposed to exist. The court finds no conflict in the letter of the two statutes. Nor does it think the duties imposed by the ordinance on the bacteriologist are of such a nature as to give rise to conflict between that official and the health officer provided for in the health and quarantine law. The former is nothing more than an agent for gathering information, as the ordinance shows. Such information will be valuable to the officers and people of the municipality in the conduct of its government within the limits of its unquestioned powers. It can in no wise curtail the powers of the health officer, nor interfere with their complete beneficial exercise, that one or a dozen bacteriologists appointed or elected by the city may cover the same ground for the purpose of getting information. The court discovers in the health and quarantine laws of the state no expressed or implied purpose to deny to a municipal corporation the authority to procure for the use of its officers and people, in the administration of their affairs, expert knowledge of things which may affect the safety, health and comfort of the community.

Wherefore a decree in favor of Mr. Duncan is affirmed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal

January 22

1 *Subjective Fremitus as a Diagnostic Means; New Adjuvant in Determining the Localization and Magnitude of the *Objective* Fremitus in Chest Examinations. S. A. Knopf, New York.
2 St. Luke the Physician. J. J. Walsh, New York.
3 The Fungus, Diplodia, as a Possible Factor in the Etiology of Pellagra. H. S. Reed, Blacksburg, Va.
4 *New Method of Treatment of Phagedenic Chancroid and Chancre by Hot-Air. E. W. Ruggles, Rochester, N. Y.
5 Appendicitis from Viewpoint of the Clinician. M. H. Fussell, Philadelphia.
6 Obstetrics, Gynecology, and Abdominal Surgery. A. H. Wright, Toronto.
7 Use of the Killian Tubes in Dealing with Foreign Bodies in the Trachea and Esophagus. H. L. Swain, New Haven, Conn.
8 Psychogenesis of Some Reflex Neuroses. T. A. Williams, Washington, D. C.
9 Balanic Hypospadias Complicated with Simultaneous Intraurethral Chancre and Gonorrhea, and Idiopathic Low Specific Gravity of the Urine. H. F. L. Ziegel, New York.

1. **Subjective Fremitus as a Diagnostic Means.**—The patient is requested to make a humming sound with the mouth closed, and then he is asked whether he feels his voice vibrating either on the left or right side or where he feels the vibration most intensely. If there is a sufficient degree of consolidation on either side, the patient will feel the vibrations caused by his voice and indicate where he feels them. That is what Knopf terms subjective fremitus. The objective fremitus is brought out by asking the patient to pronounce the words twenty-two, ninety-nine or similar sounds in a bass voice, or letting him hum as for determining the subjective fremitus. The difference in objective fremitus in early tuberculosis is often so slight that Knopf has found the following method most helpful as an adjuvant: In placing the hand over the chest in any locality where differentiation is difficult, which is particularly frequent in incipient pulmonary tuberculosis most often located posteriorly in the apices, Knopf presses his forehead on the dorsal surface of his hand. The vibrations transmitted are thus more delicately perceived by the direct communication with the brain through the frontal bone.

4. **Hot Air in Chancre and Chancroid.**—Ruggles claims that his method of treatment of phagedenic chancroid is the first attempt to utilize the thermal death point of the bacteria as a means of combating this disease, and reports three cases in which this treatment proved very effective. He is convinced that much of the benefit obtained is due to the active hyperemia produced by the long-continued heat. That the effect of artificial hyperemia on bacteria is not merely inhibitory, but, through raising the local opsonic index, bactericidal also, has been thoroughly established by Bier and other investigators. This must be the explanation of the good effects in these cases, since the secondary pus cocci which predominated in both are not directly killed by the temperature employed, though their resistance may be weakened. This being the case, Ruggles thinks it probable that the hot air treatment will prove of the greatest value in all phagedenic processes of whatever nature or origin. The oven used by Ruggles is described fully.

Boston Medical and Surgical Journal

January 20

10 *Strength of the Uterine Scar After Cesarean Section. Experimental and Clinical Study. N. B. Mason and J. T. Williams, Boston.
11 [illegible] and Treatment of Primary Apyo- [illegible] G. Cumston, Boston.
12 * [illegible] E. H. Risley, Boston.
13 [illegible] of Typhoid Bacilli for the Aggluti- [illegible] se, Boston.

10. **Uterine Scar After Cesarean Section.**—As the result of experimental work and study of the literature, Mason and Williams feel justified in drawing the following *conclusions* regarding the uterine scar after Cesarean section:

1. A carefully sutured and well-united scar will withstand any strain which can be endured by the uterine muscle.
2. *Rupture* of a Cesarean scar is [illegible] unusual weakness of the scar, dependent on im [illegible]
3. The most frequent cause of impe [illegible] placing the deep stitches too far apart, or not [illegible] hickness of the uterine muscle.
4. Location of the incision and suture of the placental site probably do not affect the strength of the scar.
5. Infection, in certain instances, plays a very important part in causing weakness of the cicatrix.
6. Catgut as a suture material is *open to the* objection that there is at least a possibility of the stitches becoming untied, and that certainly more cases of rupture have occurred after its use than after *the* use of silk.
7. As a corrollary to the foregoing conclusions, it seems evident that given a uterus which has been sutured with care to include the entire thickness of the muscular portion of the wall in each stitch, and to place the deep stitches close together throughout the entire length of the incision, using silk or linen, and in which there has been no evidence of sepsis during the convalescence, such a uterus may be subjected with safety to distention by a full-term pregnancy, or even, in the absence of mechanical indications for Cesarean section, to the strain of labor itself.

12. **Postoperative Pneumonia.**—Risley's paper is an analysis of the pulmonary complications of 1,000 consecutive laparotomies, including radical cure of hernia. The mortality in this series of laparotomies was 13 per cent. Risley found that postoperative pulmonary complications are most liable to develop in cases in which sepsis is present, and in which some

trauma has been done, not to the air passages, but to the peritoneum. Lung involvement was present in 3 per cent. of all of these cases before operation. Clean cases are nearly as liable to pulmonary complications as septic, but the mortality is practically *nil*, and the cases themselves are of atypical form and much less severe. Previous pneumonic processes do not light up again after ether. Lung complications are more common during the winter months. Flare-ups in tuberculous cases are fairly common. The exact percentage was not determined. Prophylaxis may be best carried out by: (a) a much more thorough preparation of the mouth before all operation—a ten-minute scrubbing of the teeth 3 times during the 25 hours previous to operation, followed by a thorough washing of the mouth and nasal passages and throat with such a solution as Dobell's is suggested; (b) the use of the Trendelenburg position in all prolonged operations when practical and when gravitation of septic material toward the diaphragm can be prevented by walling off; (c) the use of atropin and morphin subcutaneously one-half hour before etherization; (d) the use of the Crile method of anesthesia when practical, and in all mouth cases.

Medical Record, New York

January 22

14 Recognition and Treatment of Extrauterine Pregnancy. C. W. Barrett, Chicago.
15 *Simple and Inexpensive Portable Polygraph. W. N. Berkeley, New York.
16 *Care and Commitment of Insane Persons by Health Officers. W. L. Russell, New York.
17 *Adult Syphilis of the Lung. H. H. Pelton, New York.
18 Etiology and Underlying Causes of Pulmonary Tuberculosis. W. S. Mills, New York.
19 *Situs Viscerum Inversus Totalis. L. J. Pollock and E. B. Jewell, Dunning, Ill.

15. **Inexpensive Portable Polygraph.**—Berkeley's apparatus will record the apex beat, carotid or jugular pulse, or respiration. There are two receiving funnels, the ends covered with thin rubber dams; across one diaphragm is cemented a small block of wood which is laid against the vessel to be recorded. Two recording funnels are clamped with a bench-vise to a table, and connected with the receiving funnels by tight rubber tubes. These funnels are also covered with rubber dam, on one radius of which is cemented a small socket into which the recording lever fits. A clock laid on its face furnishes the drum mechanism, with a wooden cylinder, having three pins placed vertically along one line of its convex surface; to these pins the smoked paper is fixed. A wooden and a pasteboard box hold the whole apparatus which may be easily carried about.

16. **Commitment of Insane.**—Russell shows the advantages that would arise from the commitment and care of insane persons by the health officers of cities and country districts, instead of by policemen and constables, before their commitment to hospitals. The influence of the methods of handling and transportation of these patients by police officials is often deleterious to the welfare of the patients. They should be handled by nurses and physicians who better appreciate the mental conditions of such patients.

17. **Adult Syphilis of the Lung.**—Pelton's case was an instance of acquired syphilis of the lung in which was grafted on the luetic process an infection with tuberculosis. The positive reaction to the tuberculin injection pointed toward that possibility.

19. **Situs Viscerum Inversus Totalis.**—Pollock and Jewell give autopsy findings in a case of dementia paralytica, in which there was complete reversal of all abdominal and thoracic organs, not diagnosed before death.

Lancet-Clinic, Cincinnati

January 15

20 *The Problem of the Insane and the Defective. L. M. Crafts, Minneapolis.
21 *Elements of Success in Surgery. A. H. Cordier, Kansas City, Mo.
22 Diagnosis of Incipient Gastric Carcinoma. F. L. Rattermann, Cincinnati.
23 Widespread Peritoneal Infection Treated Successfully by the Fowler-Murphy Method. H. H. Hines, Cincinnati.

20. Abstracted in The Journal, Nov. 20, 1909, p. 1770.

21. Abstracted in The Journal, Oct. 30, 1909, p. 1505.

Northwestern Lancet, Minneapolis

January 1

24 *Poliomyelitis—Previous Epidemics. H. Sneve, St. Paul.
25 *Epidemic Poliomyelitis in Minnesota in 1908. A. S. Hamilton, Minneapolis.
26 Poliomyelitis; Report of Eighteen Cases. W. R. Ramsey, St. Paul.

24, 25. Abstracted in The Journal, Nov. 20, 1909, p. 1766.

American Journal of Medical Sciences, Philadelphia

January

27 *Pellagra and Some of Its Problems. J. N. Hyde, Chicago.
28 High Caloric Diet in Typhoid. H. A. Houghton, Bayside, L. I.
29 *Therapeutic Use of Bacterial Vaccines. E. R. Hoobler, New York.
30 *Present Status of Tuberculin Therapy. W. C. Voorsanger, San Francisco.
31 Adams-Stokes Disease with Complete Heart Block; A Conspicuous Lesion in the Path of the Auriculoventricular Bundle. L. F. Bishop, New York.
32 *Technic of Operations on Lower Portion of Ureter. C. L. Gibson, New York.
33 Suprapubic Prostatectomies. C. H. Chetwood, New York.
34 *Principles and Technic of Wassermann and Noguchi Reactions; Their Comparative Value to the Clinician. D. M. Kaplan, New York.
35 Study of the Alleged Presence of Tubercle Bacilli in the Circulating Blood. E. Burvill-Holmes, Philadelphia.
36 *Is Thromboangitis Obliterans Related to Raynaud's Disease and Erythromelalgia? L. Buerger, New York.
37 Four Cases of Cervical Rib, Two of Them Flail-like. A. P. Francine, Philadelphia.

27. **Pellagra and Some of Its Problems.**—Hyde discusses the phenomena of the disease as they have been recognized in this country, and some of the problems with which the students of pellagra in the United States apparently are confronted. The paper contains so much information that it cannot be abstracted. It is well illustrated and appended to it is a most complete bibliography of the literature on pellagra.

29. **Therapeutic Use of Bacterial Vaccines.**—Hoobler's cases may be briefly cited as follows:

Case 1.—Puerperal septicemia of forty days' duration; streptococci isolated from the blood; vaccine inoculations given; the temperature came to normal in two days; no further chills.

Case 2.—Bacteremia following mastoid disease; streptococci isolated from the blood; treatment by autogenous vaccine and operation; recovery.

Case 3.—Ulcerative endocarditis, pericarditis, and pleurisy with effusion; staphylococci isolated from the blood; vaccine inoculations resulted in these processes clearing up; for one month marked improvement took place, when the patient contracted lobar pneumonia and died.

Case 4.—Pyemia following appendicitis; liver abscess; blood cultures negative; *Bacillus mucosus capsulatus* isolated from the pus on the fortieth day after operation; the use of vaccines made from this organism followed by gradual fall of the temperature to normal and perfect recovery.

Case 5.—Postappendicular pyemia; abscess in the shoulder joint; vaccine made from pus; improvement after second inoculation; perfect recovery.

Case. 6.—Puerperal fever developing on the sixth day of the puerperium; blood culture negative; intrauterine culture showed streptococci; stock streptococcic vaccine from a streptococcic septicemia was given, and the temperature came to normal, but rose on the second day; autogenous vaccine was then given, and the pulse, temperature, and respirations came to normal.

Case 7.—Pelvic abscess; *Bacillus coli communis* isolated from the pus; after many autogenous inoculations the temperature came to normal.

Case 8.—Infected foot, followed by cellulitis of the leg and later erysipelas; streptococci found in the pus from the foot; a stock vaccine used; after two inoculations temperature came to normal.

30. **Present Status of Tuberculin Therapy.**—Voorsanger does not regard tuberculin as a specific in tuberculosis, but only a valuable adjunct to the hygienic and dietetic therapy of the disease.

32. **Operation on Lower Portion of Ureter.**—In Gibson's opinion, *the ideal method of performing* operations on the lower ureter should fulfil the following conditions: The incision of the abdominal wall should be of such size and situation as to give an ample exposure for the easy recognition of the ureter, the necessary manipulations, and security from injury to the other pelvic structures, particularly the iliac vessels. The incision should be extraperitoneal. It should be possible to make the ureter so freely accessible that any incision in it can be as easily and accurately repaired as a lesion of the intestine. There should be no unnecessary trauma or malhandling of the tissues, so that the completion of the operation should leave a perfectly dry field, doing away (when the continuity of the ureter has been restored) with

the necessity of drainage—a prophylactic measure against subsequent hernia. The incision of the abdominal wall should be so planned as to produce the least damage, allowing when it is closed without drainage a firm union without risk of hernia. Finally, the whole operation should be so simple, so free from annoying hemorrhage or other pitfalls, that it can be performed without undue waste of time—half an hour or less. These ideals, Gibson believes, can be realized by a suitable exposure of the ureter and the lower pelvis by an incision which he has used in probably a hundred laparotomies. The skin incision runs from the mid-line about a finger's breadth above the pubes, horizontally outward nearly parallel to Poupart's ligament at first and curves rather sharply upward at its mid-point to end about opposite the anterior superior spine of the ilium. This incision is deepened in the same line through the aponeurosis of the external oblique and the internal oblique muscle—the latter is the only structure which suffers any real damage, and only to a slight degree, for the lower part of the incision runs about parallel to its fibers, only the ascending leg cuts across a small part of these fibers. The incision stops short of the transversalis, which is not disturbed at all. With efficient retraction of the upper flap the external border of the rectus muscle is identified and the fascia of the transversalis is then divided by a vertical incision close to and parallel to the rectus—that is, at right angles to the original incision. Two retractors are then inserted, the outer one retracts the cut edge of the transversalis outward, the other pulls the rectus muscle well toward the mid-line.

So ample is the space and view, that the whole hand can be introduced under the control of the eye. The ureter is released from its surroundings and easily brought to the external level of the wound. In this way it can be handled readily and freely. The wound is closed without drainage. The transversalis fascia is sutured separately with catgut. Continuous sutures of medium-sized catgut (preferably moderately chromicized) are used for the combined internal and external oblique layer. A few interrupted fine catgut sutures are used for the superficial fatty layer. Very fine continuous silk sutures are used for the skin.

34. **Wassermann and Noguchi Reactions.**—Kaplan found that the Wassermann reaction gives negative results in about 7 per cent. of positive serums, treatment periods excluded. The Noguchi method gives 8 per cent. of positive results in clinically well-established non-syphilitic individuals. The positive reactions in these cases are ordinary reactions and cannot be said to be remarkably strong.

36. **Thromboangiitis Obliterans.**—Thromboangiitis obliterans is a clinical and pathologic entity characterized by thrombotic occlusion of arteries alone or of arteries and veins, giving subjective manifestations, chief among which are pain and the peculiar symptoms of intermittent claudication, and presenting objective phenomena, the most important of which are redness in the dependent position of the limb, marked blanching in the elevated position, evidences of arterial occlusion in the form of pulseless vessels, trophic disturbances of moderate extent and of even grave consequences often terminating in gangrene of one or both lower extremities. Buerger says that we possess no data which tend to show that either erythromelalgia or Raynaud's disease is dependent on organic obliteration of arteries or veins. Clinically, thromboangiitis obliterans may show many variations from a set form, and this accounts for the fact that the true condition is so frequently overlooked. Associated migrating phlebitis and symptoms of intermittent claudication are but two of a number of phases that may stand out as striking features. *Individual characteristic* symptoms of thromboangiitis obliterans do not justify us in establishing a relationship between this disease and others in which somewhat similar phenomena may be found.

Wisconsin Medical Journal, Milwaukee

December

38 *Transactions of the Sixty-third Annual Meeting of the State Medical Society of Wisconsin.

38. This issue is devoted entirely to the transactions of the state society for 1909.

Atlanta Journal-Record of Medicine

December

39 Cure of Traumatic Neurosis. T. A. Williams, Washington, D. C.
40 Pellagra in Metcalf, Ga. W. W. Jarrell, Thomasville, Ga.
41 Prognosis and Treatment of Pellagra. C. H. Lavinder, U. S. P. H. and M.-H. S.
42 Laceration of the Scrotum. S. B. Little, Colbert, Ga.

Journal of the Oklahoma State Medical Association, Muskogee

January

43 Differentiation of Fractures of the Neck of the Femur. S. R. Cunningham, *Oklahoma City*.
44 Changes of Metabolism in Diabetes Mellitus. R. H. Harper, Afton.
45 *Supernumerary Ovary. F. W. Noble, Guthrie.
46 Three Ectopic Pregnancies and Three Operations in the Same Patient in Four Years. J. H. White, Muskogee.
47 Value of Bismuth-Vaselin-Paste Treatment in Tuberculous Sinuses and Abscess Cavities. A. A. West, Guthrie.
48 Etiology, Pathology and Theories of Glaucoma. E. F. Davis, Oklahoma City.
49 *Case of Emboli. T. H. Flesher, Edmond.
50 Treatment of Fracture of the Clavicle. L. F. Watson, Oklahoma City.

45. **Supernumerary Ovary.**—In Noble's case a well-developed ovary about the size of a wren's egg was situated about an inch posterior and inward from the left ovary which microscopically consisted of normal ovarian tissue.

49. **Air Embolism.**—In an attempt to produce an abortion, quinin was insufflated into the uterine cavity, through a soft rubber catheter passed for that purpose. The woman immediately became unconscious and died about fifteen hours later. The *diagnosis made of the* cause of death was air embolism, gaining entrance by way of the uterine sinus and carried to the right side of heart, producing a thrombus or going still farther by way of the pulmonary artery to the lungs and producing edema of the lungs.

Texas State Journal of Medicine, Fort Worth

January

51 Ovarian Fibroid. E. G. Mathis, Manor.
52 *Myasthenia Gravis in Lymphatic Leucemia. M. L. Graves, *Galveston.*
53 Toxemia of Pregnancy, with Special Reference to the Pre-eclamptic Stage. W. L. Crosthwaite, Holland.
54 *Tuberculosis of the Uterus, Ovaries and Fallopian Tubes. K. H. Aynesworth, Waco.
55 Diagnosis of Obscure Forms of Nephritis. A. E. Austin, Galveston.
56 Belladonna Atropin. I. L. Van Zandt, Fort Worth.
57 Why So Many Puerperal Convulsions? S. P. Vinyard, Amarillo.
58 Teething. W. Shropshire, Yoakum.
59 To Lengthen Human Life. C. E. Cantrell, Greenville.
60 *Fragilitas Ossium. J. B. Thomas, Midland.

52. ***Myasthenia Gravis in Lymphatic Leucemia.***—Graves reports a case presenting the symptom-complex of myasthenia gravis dependent on, or associated with, the toxemia of lymphatic leucemia, in a man aged 41.

54. **Tuberculosis of Uterus and Adnexa.**—Aynesworth reports a case of tuberculosis of the Fallopian tubes, with extension to the peritoneum; simple fungous endometritis; intraglandular papillary cystic endocervicitis with inflammation and erosion of the cervix; cystic degeneration of the ovaries, occurring in a woman 34 years old. A radical operation was done. Recovery was rapid; health was restored, and to date, ten months later, there is no evidence of a return of the trouble.

60. **Fragilitas Ossium.**—At the age of 67, in December, 1908, on arising from his chair at the dinner table, the patient, a man, was seized with sudden pain in the leg between the knee and hip; he was assisted to his bed and the family physician summoned, who diagnosed fracture at about the junction of *the middle and upper third of the left femur. After* consultation and careful investigation it was decided that the fracture occurred probably as a result of a gunshot injury sustained about forty-five years before; the usual treatment for such cases was instituted, including extension, etc., but without obtaining any apparent bony consolidation; two months later, while lying quietly on his back in bed, the man was again seized with violent pain accompanying fracture of the opposite limb at about the same location; in this instance, however, it was clearly evident that the fracture was due to muscular contraction exerting its influence on bone unduly brittle; this

fracture, also, was treated in splints with extension, but without the slightest union whatever. It was not until the second fracture had occurred that it was possible to diagnose the condition definitely as fragilitas ossium.

Iowa Medical Journal, Des Moines

December

61 Prevention of Adhesions in Abdominal Surgery. J. C. Webster, Chicago.
62 Progress in Obstetrics and Gynecology. W. R. Whiteis, Iowa City.
63 Extrauterine Pregnancy. L. C. Kern, Waverly.
64 Cystoscopic Diagnosis of Conditions Peculiar to the Female Bladder. B. S. Barringer, New York.
65 *Dysmenorrhea. C. W. Wahrer, Fort Madison.
66 Protracted Labor. H. E. Pfeiffer, Cedar Rapids.
67 Notes from Obstetric Practice. J. E. Luckey, Vinton.
68 Infections in the Puerperium. J. Donohue, Burlington.
69 Pellagra. F. P. Schultze, Marengo.
70 Insufflation and Aspiration in Middle-Ear Di[illegible] when
Wood, Marshalltown. [illegible] toward the

65. Abstracted in THE JOURNAL, July 10. [illegible] (c) the use of
[illegible]-half hour before

Journal Arkansas Medical Soci[illegible] method of anesthesia

Decem[illegible]

71 *Appendicostomy in Treatm[illegible]
Little Rock. [illegible] New York
72 Neuroparalytic, or Trop[illegible] ary 22
Dorr, Batesville.
73 Pneumococcus Endoc[illegible] of Extrauterine Pregnancy. C. W.
74 Too Much Operati[illegible]
75 Therapeutic Val[illegible] Portable Polygraph. W. N. Berkeley,
Lowe, Pine [illegible]
[illegible] ment of Insane Persons by Health Officers.
71. Treatm[illegible] New York.
[illegible] of the Lung. H. H. Pelton, New York.
ses of ep[illegible] and Underlying Causes of Pulmonary Tuberculosis.
tip[illegible] Mills, New York.
[illegible] Viscerum Inversus Totalis. L. J. Pollock and E. B.
Jewell, Dunning, Ill.

[illegible]expensive Portable Polygraph.—Berkeley's *apparatus* [illegible]d the apex beat, carotid or jugular pulse, or respira- [illegible]re are two rec[illegible]els, the ends covered with [illegible] two years in ave[illegible]mented a small [illegible]ring a large number of patients and of impr[illegible] [illegible] and diminishing the frequency of seizures in [illegible]ely relieved.

Memphis Medical Monthly

December

[illegible]Relations. W. H. Deaderick, Marianna, Ark.
[illegible]glish Thought on Medicine. F. A. Jones, Mem-
[illegible]eatment of Pernicious Malaria. S. W. Glass,
[illegible]ractures. W. S. Lawrence, Memphis.
[illegible]om the Viewpoint of Those Other than Oph-
[illegible] C. Ellett, Memphis.
[illegible] *Southern Medical Journal,* November,

Am[illegible]l of Physiology, Boston

January

81 *Experimental Glycosuria—Distribution of Glycogenolytic Ferment in the Animal Body, Especially of the Dog. J. J. R. MacLeod and R. G. Pearce, Cleveland.
82 *Study of the Concentration of Antibodies in the Body Fluids of Normal and Immune Animals. J. R. Greer and F. C. Becht, Chicago.
83 *Acapnia and Shock—Fatal Apnea After Excessive Respiration. Y. Anderson, New Haven, Conn.
84 Effect of Severing the Vagi or the Splanchnics or Both on Gastric Motility in Rabbits. J. Auer, Boston.

81. **Experimental Glycosuria.**—Macleod and Pearce directed their experimental investigation to the determination of the question whether the enzyme in the liver which destroys glycogen is contained in the blood and serum or is fixed in the liver cells. They found that the washed liver does not yield the maximum of diastatic activity until the cells are broken up so as to set free the ferment contained in them. The blood and lymph contained more ferment than the liver tissue, but whether the ferment in the liver tissue is manufactured by the cells or taken by them from the blood is left unsettled. Prolonged perfusion (15 minutes) of the liver with isotonic saline solution does not cause any diminution in the glycogenolytic power of an extract of the organ. This is taken as evidence against the view that the glycogenolytic activity of blood-free liver is due to lymph. The amount of glycogenase in blood, serum, and in liver extracts was found to decrease in the dog, pig, rabbit and lamb in the order named, although the relative activity of serum and liver extracts did not always run parallel. In the various organs the greatest amount of glycogenase is found in the pancreas, then the serum, and the liver next.

82. **Concentration of Antibodies.**—Greer and Becht studied the concentration of various antibodies in the different body fluids on cats and dogs with the following results: In the normal dog hemolysins and agglutinins for rabbit corpuscles are found in the serum, neck lymph, and thoracic lymph; they *are not found* in the cerebrospinal fluid nor aqueous humor, but agglutinins may be present in the pericardial fluid. In most cases the concentration diminishes in the following order: Serum, thoracic lymph, neck lymph, pericardial fluid, but in some cases thoracic lymph precedes serum. In dogs immunized to a heterologous blood, hemolysins and agglutinins are found in the same fluids as in the normal *animal,* but
[illegible]molysins are usually found in the pericardial fluid and
32 *T[illegible]tinins may be found in the cerebrospinal fluid and
so[illegible]humor. The concentrations vary in the various fluid
33 Suprar[illegible]rmal animal.
34 *Principle
Their [illegible]on of guinea-pig serum as complement in non
New Yo[illegible]ces increases greatly the hemolytic power of the
35 Study of [illegible]
culating lymph, thoracic lymph, and pericardial fluid;
36 *Is Thromb[illegible] course of immunization the amboceptors are
and Eryth[illegible]
37 Four Cases o[illegible] the body fluids in which they are normally
Francine, I[illegible]dly than is the complement. Cerebrospinal
humor do not become hemolytic even on the

27. **Pellagra and** [illegible]ement, therefore they do not contain ambo-
phenomena of the
country, and som[illegible]adily develop precipitins for rabbit serum.
of *pellagra in the* [illegible]*illus typhosus* are present in normal cats in
The paper contains [illegible]e hemoagglutins and generally the same is
abstracted. It is we[illegible] In immunized dogs and cats the con-
most complete bibliogr[illegible]l but not more than traces are found

29. **Therapeutic Use o**[illegible] and aqueous humor. In the passively
may be briefly cited as fo[illegible]glutinins pass readily from the blood

Case 1.—Puerperal septice[illegible] They do not pass into the pericardia[illegible] from the blood; fluid, or aqueous humor. The time required for this passage is relatively short, being as complete in four and one-half hours as in twenty-four hours. Bacterial opsonins and hemopsonins are found in the body fluids of normal animals. The concentration varies substantially as for agglutinins but they are rarely found except in traces in the pericardial or cerebrospinal fluid or in the aqueous humor. Immunization by repeated subcutaneous injections does not increase the opsonins to any very marked extent but the concentrations of hemopsonins in the body fluids can be thus increased.

83. ***Acapnia and Shock.***—Henderson reaches the following conclusions: Voluntarily forced breathing in man, so far as the experiment can be safely carried, induces symptoms similar to those of shock. Death from failure of respiration would probably result from vigorous voluntary hyperpnea for fifteen or twenty minutes. Pain, ether-excitement, sorrow, fear and other conditions inducing shock, involve excessive respiration. Excessive artificial respiration, applied to dogs for from twenty-five to thirty minutes, is followed by apnea so prolonged that the heart fails, after seven or eight minutes, for lack of oxygen. The inactivity of the respiration center is solely due to the depletion of the body's store of carbon dioxid. During the anoxyemia after the second minute of apnea the products of incomplete tissue combustion accumulate in the blood. If the acapnia is not too intense, this acidosis furnishes a potent aid in restoring spontaneous breathing. The alternate *accumulation* and *oxidation* of acidosis substances in the blood induce Cheyne-Stokes breathing. Administration of carbon dioxid gas during apnea induces immediate return of natural breathing. Administration of oxygen by the Volhard method affords ideal conditions for recovery from acapnia, and prevention of asphyxial acidosis. Deep anesthesia diminishes the sensitiveness of the respiratory center to the influence of carbon dioxid, so that a subject which has previously developed acapnia inevitably ceases to breathe as soon as the third stage of anesthesia is induced. In any less quantity, however, ether tends to prevent apnea, unless its influence as a "respiratory stimulant" is neutralized by morphin.

Vermont Medical Monthly, Burlington

December

85 A Defence of Sanity. F. S. Lee, [illegible]
86 Laboratory Diagnosis. E. A. Colt
87 Hydrophobia and the Pasteur Met[illegible] W. H. Lane, Burlington.

Cleveland Medical Journal

January

88 Coagulation of Blood. W. H. Howell, Baltimore.
89 *Tests of Insanity in the Criminal Court. W. A. Carey, Cleveland.
90 *Idem. A. B. Howard, Cleveland.
91 Essentials in Treatment of Non-Ambulatory Cripples Deformed by Infantile Paralysis. H. O. Feiss, Cleveland.
92 Smith Cataract Extraction of the Capsule. A. R. Baker, Cleveland.
93 Hemorrhagic Varicella. R. W. Elliott, Cleveland.

89. *Tests of Insanity.*—It is Carey's opinion that much of the controversy between the medical and legal professions as to the proper test of responsibility in cases of insanity has been brought about by the fact that the members of the medical profession are the product of schools which, the world over, in general follow certain rules for their guidance and which rules can, with *no* lack of *propriety*, be applied in different localities; whereas the administrators of the law must adjust themselves to the needs of the different communities in the same degree as different communities vary in their law.

90. Id.—Howard emphasizes the fact that the physician in making his examination has only the medical points in the case to consider. That is to say, he has nothing whatever to do with the outside circumstances surrounding the act, he has to determine only the condition of the brain cells, so that it matters not what the case may be or whether it is due to influences of heredity. In the case of traumatism, syphilis, alcoholism, epilepsy, dissipation, excesses, tumors or any other known cause the question is: Are the brain cells properly performing their functions? If the brain cells are wholly diseased and abnormal the individual is irresponsible.

Archives of Pediatrics, New York

December

94 Etiology of Scarlet Fever. A. Hand, Philadelphia.
95 Municipal Control of Scarlet Fever. M. Ostheimer, Philadelphia.
96 Complications of Scarlet Fever. S. S. Woody, Philadelphia.
97 Difficulties in Diagnosis of Scarlet Fever. J. F. Schamberg, Philadelphia.
98 Treatment of Scarlet Fever. D. J. M. Miller, *Atlantic City*, N. J.
99 Casein Curds in Infants' Stools. F. B. Talbot, Boston.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

January

100 *Terminal Events in Gall-Stone Disease. C. N. Smith, Toledo, O.
101 *Three Years of Gynecology and Obstetrics* in the United States. J. W. Bovée, Washington, D. C.
102 *Climacteric Hemorrhages. J. R. *Goodall*, Montreal.
103 Unicornate and Bicornate Uterus. A. Brothers, New York.
104 **Fibrosis as a Cause* of Preclimacteric Uterine Hemorrhage. M. Rabinovitz, New York.
105 Is the Routine Administration of the Preoperative Purge Defensible? E. Walker, Evansville, Ind.
106 Intrapartum Vaginal Myomectomy for Intraperitoneal Fibroids Obstructing Labor. K. I. Sanes, *Pittsburg*.
107 Cesarean Section, Abdominal and Vaginal, Compared and Contrasted. M. F. Porter, Fort Wayne, *Ind.*
108 Methods of Drainage in Pelvic and Abdominal Surgery. J. F. Baldwin, Columbus, O.
109 *Postpartum Hemorrhage. D. H. Stewart, New York.
110 Hematoma of Abdominal Wall Simulating a Desmoid Tumor. S. Wiener, New York.
111 Caries of the *Hyoid Bone*. *J. E. Cannaday*, Charleston, W. Va.
112 *Thrush. H. P. de Forest, New York.

100. **Terminal Events in Gall-Stones.**—Smith says that because *of* the erroneous statement, based on conclusions drawn without warrant from the post-mortem examinations, and so *frequently* repeated in the literature of cholelithiasis, to the effect that in the *great majority* of instances, gall-stones are unproductive of either *symptoms or serious* complications, the impression that, *as a rule*, gall-stones are void of a serious danger has *obtained widespread credence*. This, together with the *fact* that the *diagnosis of* gall-stones seldom has been made *prior to the onset of complications* has resulted in gall-stone surgery becoming largely *the surgery* terminal events. Occlusion of the cystic duct from inflammation excited by the irritation of gall-stones as well as the direct blockage of the duct by stone, so frequently rendered permanent by contraction of the inflamed duct about the offending concretion, must be looked on as a terminal event in the progress of cholecystitis, itself a complicating and comparatively late event in gall-stone disease. The still later sequential phenomena of hydrops, empyema, gangrene ulceration, perforation and rupture of the gall-bladder, as well as sclerosis, contraction and obliteration, and malignant disease, are *terminal* events of a higher degree. From observation and from a study of the literature of the subject, Smith is convinced that the frequency with which rupture of the gall-bladder occurs as a terminal event in gall-stone disease is scarcely appreciated. In his opinion, these cases are commonly diagnosed as peritoneal infection from appendicitis, operated on as such and so recorded, unless gall-stones, correcting the diagnosis, are found in the peritoneal cavity.

102. **Climacteric Hemorrhages.**—The treatment of climacteric hemorrhages according to Goodall resolves itself into the prophylactic, palliative and operative. The prophylactic treatment is directed toward the prevention or removal of all the conditions which leave the uterus in a state of subinvolution. That is, a more careful routine examination of the placentas and membranes to see that everything has come away; careful asepsis, and later a careful examination into the causes of a prolonged lochial discharge; and finally, a careful examination of patients some weeks after labor to ascertain that conditions are normal. A persistent retroversion after labor Goodall looks on as a very frequent cause of subinvolutio[illegible] and later of chronic metritis. Palliative treatment co[illegible]still in rest, physiologic as well as physical, and the [illegible]ngs and various ecbolics and hemostatics. Goodall [illegible] seen little or no effect except that [illegible] bring about. Massage and [illegible]dicine, **Fort Worth** infrequently return of general strength [illegible] diminution of the loss of blood. Operative treatment [illegible] divided into minor operative measures and the radical cu[illegible] In cases in which the endometrium is markedly hypertrophic, doubtless the results from curettage are very great. The course to be adopted will differ with the class of *patients*. Among the leisure classes the patient may be advised to undergo a curettage and repair of the cervix in the hope of an improvement of the symptoms. If the curettage yields but a little or no endometrium the chances of improvement are very *slight* and hysterectomy under those conditions is *imperatively* demanded. The results from hysterectomy are sure and satisfactory. Whether the procedure will be abdominal or vaginal will depend entirely on the nature of the case and the ability of the surgeon.

104. **Preclimacteric Uterine Hemorrhage.**—Rabinovitz is of the opinion that preclimacteric uterine hemorrhage is due to an hyperdevelopment of fibrous connective tissue in the uterine walls, which takes the place of the exhausted and finally atrophied muscle fibers. With the diminution of muscle tissue and elastic fibers there ensues a loss of contractility, and this loss becomes greater after each succeeding *pregnancy*, until uterine compensation is entirely broken. The menorrhagia and metrorrhagia *in this* class of cases is not due to *friability* or atheromatous condition of the blood-vessels, but to an insufficiency and inability of the uterine muscles to contract and close the gaping arteries and sinuses. The blood-vessel changes are secondary to those taking place in the muscularis, as proven by the *invasion of fibrous changes from without* into the adventitia, by the compensatory *hypertrophy of the* media, and by the normal state of the *intima*. The condition of fibrosis uteri is not the sequel of inflammatory reactions, but the result of biologic changes.

109. **Postpartum Hemorrhage.**—Stewart urges that the term postpartum hemorrhage should be applied *solely to a flow of* blood after delivery, 1,000 c.c. *or more in* amount, which blanches the lips, produces air hunger, and which gives *rise* to the pulse symptoms *of severe* hemorrhage. Other bleedings occurring under similar circumstances are properly *named* "excess bleeding," "threatened postpartum" or "traumatic hemorrhage" as the *case may be*. A good **precauti**

21. **The Appendix.**—If after examining a case of supposed appendicitis the surgeon comes to the conclusion that the sum of the clinical symptoms justifies the operation for removal of the appendix, Lockwood thinks he should not be deterred from the removal of that appendix because its exterior looks normal, for its interior may be seriously diseased.

Practitioner, London

January

24 *Caries Sicca of the Shoulder Joint. Sir W. W. Cheyne.
25 Mortality Returns: Tuberculosis. Sir H. Beevor.
26 Preservation of Health in the Tropics. Sir R. H. Charles.
27 *Value of the Undescended Testicle. J. Bland-Sutton.
28 Anomalies of Internal Secretion—Acromegaly. D. Ferrier.
29 Pathology of Extrauterine Pregnancy. S. Savage.
30 *A Little-Recognized Consequence of Adenoid Growths. E. Smith.
31 Treatment of Cancer of the Cervix Uteri. C. Lockyer.
32 Clinical Study of the Glycogenic Reaction in Blood. W. H. Brown.
33 Pyorrhea Alveolaris, Primary External Periodontal Infection and Oral Sepsis. J. G. Turner.
34 Streptococcal Disease of Middle Ear with Normal Drum and Perfect Hearing. S. Scott.

24. **Caries Sicca of the Shoulder Joint.**—Caries sicca is not accompanied by swelling. It is seldom followed by suppuration and is not accompanied by any thickening of the synovial membrane. The changes which occur are essentially in the bone, which becomes atrophied and thin and eroded, while the cartilage is destroyed over it. The condition may persist for a long time, the patient having constant pain in the joint, especially on movement and pressure, and the joint may be stiff. In the case of the shoulder the deltoid may atrophy, but there is no swelling at all corresponding to that of ordinary tuberculous disease. Further, the patient has constant pain if he lies on the joint and also if he moves it at all, whereas while it is absolutely at rest he has no pain. He has almost complete stiffness of the joint in nearly every direction, and more especially he has suppuration round the joint and an abscess in connection with it.

27. **Value of Undescended Testicle.**—Bland-Sutton points out that the imperfections of an undescended testicle are the cause, not the consequence of its failure to reach its goal in the scrotum. An undescended testicle is more liable to malignant disease than one which is normally lodged in the scrotum. Surgical efforts to preserve a retained, or a partially descended organ, he says, may be described as a supererogation.

30. **Consequence of Adenoid Growths.**—The consequence Smith refers to is the liberal secretion of thick and acrid mucus which is always present when the post-nasal catarrh is of long standing. If in such a case the throat be examined in a good light the mucous membrane at the back of the pharynx will often be seen to be flabby or even velvety-looking, evidently very much thickened and congested. If secretion be copious, thick yellowish mucus may, perhaps, be seen flowing downward at the back of the pharynx, and this causes the patient to make frequent swallowing efforts when the secretion reaches the muscles of deglutition. Two consequences arise from this state of things. The continual passage into the stomach of a quantity of acrid mucus is a cause of gastric derangement, setting up a disturbance which resists treatment with extreme obstinacy until its cause is discovered and the inflow of mucus restrained. Again, the nasopharyngeal irritation is apt to excite a troublesome cough, which may continue for weeks or months, and be accompanied by copious expectoration. These two consequences may occur separately or together. The digestive difficulty may be present without the signs of laryngeal irritation, but it is rare for the cough to be troublesome and secretion free without some evidence being seen of gastric disturbance.

Indian Medical Gazette, Calcutta

December

35 Prostatectomy. E. H. Brown.
36 Typhoid Fever in Infancy. A. F. Hamilton.
37 Delusions in Young People with Special Reference to Those Due to Dementia Paranoids. G. F. W. Ewens.
38 Sporadic Kala-Azar in Behar. F. Mills.
39 Experiences of Micrococcus Catarrhalis Infection. J. R. Roberts.
40 An Outbreak of Cholera. F. W. Sumner.

Bulletin de l'Académie de Médecine, Paris

December 21, LXXIII, No. 42, pp. 483-598

41 Prophylaxis of Typhoid. E. Delorme.
42 *Period of Physical and Mental Depression in Men during the Forties. (Sur le retour d'age de l'homme.) M. de Fleury.
43 Latest Discoveries of Fossil Skeletons. (Les dernières découvertes d'hommes fossiles.)
44 *Characteristic Displacement of the Larynx by Aortic Aneurism. (Du signe de l'abaissement du larynx avec déviation à gauche et en arrière dans l'anévrisme de la crosse de l'aorte.) E. Boinet.

December 28, No. 43, pp. 599-634

45 Inflammatory Tuberculous Processes Responsible for Much Disease of the Thyroid and Defective Functioning. A. Poncet.

42. **"Change of Life" in Man.**—DeFleury has encountered in 201 cases a form of neurasthenia in men approaching fifty in which the nervous and mental symptoms had been preceded for a time by signs of sluggish nutrition, autointoxication and lowered vitality. Among these 201 patients 72, before applying to him, had taken a course of treatment at a sanatorium for their neurasthenia but without avail as treatment had been addressed solely to the mind, and the physical basis for the disturbances had been disregarded. In these cases the psychologic features are subordinate to the physical, this phase of nervous depression during the forties being amenable to medical measures, the mental condition being only the reflection on the mind of a primary physical condition easily demonstrated by the concentration of the urine, the tendency to ptoses, to varices, hemorrhoids, etc., an unusually high blood pressure in the candidates for arteriosclerosis, unusually low in others, with often rebellious eczema, obesity, joints that crack, or a trace of pulmonary emphysema. Psychotherapy is comparatively useless in these cases; treatment should be directed against the autointoxication, and hygiene in all things should be enforced. He is inclined to attribute the whole trouble to insufficiency of the thyroid, and has derived great benefit from thyroid treatment in small and very slowly progressive doses, always under scrupulous supervision. When this is not possible he prefers ordinary tonics, especially subcutaneous injections of salt solution, which act on the blood pressure, stimulating directly the central nervous system, the great regulator of nutrition, and rousing from its torpor the thyroid apparatus which under their influence soon begins to manifest its action.

44. **Displacement of the Larynx with Aneurism of the Aorta.**—Boinet gives an illustrated description of six cases, showing the way in which an aneurism of the aorta is liable to push the trachea backward, downward and toward the left, and thus pull the larynx out of place. This dragging down of the larynx and its deviation to the left and back may, he asserts, be regarded as a reliable sign of aneurism of the aorta.

Lyon Médical, Lyons

December 19, CXIII, No. 51, pp. 1065-1118

46 *Treatment of Uterine Hemorrhage by Clamping the Os. (Nouveau mode de traitement des métrorrhagies.) M. Pollosson.

46. **Treatment of Uterine Hemorrhage by Clamping the Os.**—Pollosson has devised some special clamps for this purpose, the aim being to compress the cervix for some distance above the vagina, thus closing the passage. A small clot forms which effectively arrests the hemorrhage. A forceps with curved fork-like teeth seizes the cervix high up, while exerting pressure below from the parallel blades. The first case in which he applied the forceps occurred in 1886, and he has since used it in 11 other cases. Unless specially informed of the presence of the forceps, the patients are unaware of it and accept it as an ordinary tampon. The method is for emergencies only, although it may prove curative in some instances. His cases were all non-puerperal; he has never ventured to apply the method for puerperal hemorrhage.

Presse Médicale, Paris

December 25, XVII, No. 103, pp. 929-936

47 *High Amputation of the Rectum through the Perineum. H. Hartmann.

December 29, No. 104, pp. 937-944

48 Seroreaction in Syphilis. Noguchi Modification of Wassermann Reaction. (Séro-réaction dans la syphilis. Méthode de Wassermann modifiée par Noguchi.) L. Deval.

49 *Superheated Air in Acute Postoperative Peritonitis. (L'aérothermothérapie dans le traitement de la septicémie péritonéale aigue post-opératoire.) F. Jayle and H. Dausset.

47. **Amputation of the Rectum.**—Hartmann states that he has had two cases of gangrene of the stump of the rectum after high perineal amputation with ideal healing, and he has also observed cases of recurrence in the pelvic cellular tissue with the rectal mucosa still intact. He has since learned how to avoid these complications, due in part to the fact that the superior hemorrhoidal arteries are practically terminal, without anastomoses; in order to avoid gangrene a ligature should be applied high up on the common trunk, and both ends must be ligated. This requires an abdominal incision. He has applied this combined abdominal perineal technic in six cases, all the patients recovering except one, who succumbed to hemorrhage from neglect to ligate the second branch of the artery as above indicated.

49. **Superheated Air in Acute Peritoneal Septicemia.**—Jayle remarks that if the bowels do not functionate after a laparotomy the outlook is grave, and that the key to success in treatment of postoperative peritoneal septicema is to ensure that the bladder and intestines resume normal action. Nothing has proved so effectual for this in his experience as application of superheated air at 70 or 100 C. (158 or 212 F.). He repeats the application for about 30 minutes 2 or 3 times during the 24 hours, the abdomen being uncovered except for a compress over the wound. After each application the abdomen is packed with hot cotton or compresses dipped in hot serum. He has found that the superheated air has a soothing action while it stimulates the intestines and bladder to normal functioning and the pain subsides. It is possible that the dilatation of the abdominal capillaries promoting diapedesis and the movements of the leucocytes and phagocytosis may all aid in increasing the natural defensive processes. In one case described in detail the temperature kept very high, and the pulse at 145 after removal of a suppurating cyst in the adnexa and the abdomen was becoming more and more distended, without benefit from the knee-chest position for 20 minutes, lavage of the stomach, etc. Conditions began to improve at once after the application of the superheated air. He gives an illustration of the way in which the box is applied to the abdomen.

Revue de Gynécologie, Paris

December, XIII, No. 6, pp. 955-1160

50 The Hymen after Delivery. (L'hymen après l'accouchement.) F. Jayle.
51 *Plastic Utilization of Uterus in Treatment of Genital Prolapse. (Utilisation plastique de l'utérus par inclusion inter-vésicovaginale dans la cure des prolapsus génitaux.) H. Violet.
52 Bone Formation in Laparotomy Scar. (Développement d'une ossification véritable dans une cicatrice de laparotomie.) P. Lecène.
53 *Abnormal Renal Blood Vessels and their Connection with Hydronephrosis. (Vaisseaux anormaux du rein et l'hydronéphrose.) E. Papin and F. Iglesias.

51. **Plastic Utilization of Uterus in Treatment of Genital Prolapse.**—Violet has recently reexamined 3 patients on whom he performed this operation from 2 to 4 years ago. He found the ultimate results good and describes the technic, in which he followed Wertheim's directions. He also discusses the outcome in 289 other cases on record, the indications, etc., regarding the method as the best yet proposed.

53. **Abnormal Renal Blood Vessels and Their Connection with Hydronephrosis.**—Papin presents a second memoir on this subject, both issuing from Albarran's service. He here discusses the correcting measures and special indications, and gives an illustrated summary of 47 cases, including some personally observed.

Revue de Médecine, Paris

December, XXIX, No. 12, pp. 841-938

54 *Aortic Aneurism. (Le syndrome de Hogdson.) J. Vires and Anglada. Commenced in No. 11.
55 *Pneumonia Attended with Splenization of the Lung. (Splénopneumonies. III.) Mosny and Malloizel.
56 *More Urine Voided Fasting than during Digestion: Opsiuria. (L'opsiurie.) L. A. Amblard.

54. **Aortic Aneurism.**—In treatment, Vires repeats, the aim is to modify the structure of the vessel walls and to combat the injurious influence of their morbid conditions on the heart. Potassium iodid is the main reliance for the first indication unless the cardiac insufficiency is too pronounced, in which case its depressing action on the blood pressure may add an element of danger. Trunecek's serum is theoretically preferable if its efficacy were a little better established. Diuretic measures may also prove useful, and arsenic. If compensation is well maintained the hypertrophy of the heart should be respected, but with failing compensation or signs of mitral and tricuspid insufficiency with pulmonary hypertension, treatment should be that for cardiovascular weakness in general. Mercurial treatment is required for the frequent underlying cause; syphilis is more likely to induce aneurism than regular dilatation of the aorta.

55. **Splenopneumonia.**—This condition seems to be very frequent in acute articular rheumatism but commonly escapes recognition. Mosny remarks that it is really a cortico-pleuritis, and the process is not always painful, resembling in many respects the pleurisy sometimes accompanying typhoid or the second stage of syphilis, but there is more engorgement and condensation and the effusion is more profuse. There is always some rise in temperature, and this should always suggest a complication on the part of the pleura when there is nothing else to explain the fever in acute rheumatism. Auscultation should never be neglected, and if there is egophony, that is, a bleating quality of the voice, there is danger of the development of an extensive effusion, as this seems to be always a sign of pleural edema. Three typical cases are reported in detail, including two with pleuropericarditis. Any infection involving the lungs may induce the syndrome of splenopneumonia. The tubercle bacillus is incriminated in about half the cases. The tuberculous cases are distinguished by slight transient albuminuria and a tendency to mild fever. It is important to bear in mind that tuberculosis is not always a chronic malady, but may manifest itself as a succession of acute or subacute episodes, suggesting mere colds or influenza. These episodes seem to pass over completely with spontaneous recovery, autopsy records showing what a large proportion of persons recover from their tuberculous lesions, unaware of their very existence. Besides the bronchitic pleuropneumonia with splenization and the pleuro-cortical type with effusion, we may encounter the type with tuberculous bacillemia. Each may occur alone or with established tuberculous lesions elsewhere.

56. **Opsiuria as Sign of Liver or Kidney Disease.**—Amblard has noticed that in liver or kidney disease more urine is voided during fasting than during digestion. This is particularly striking when the amount of urine voided within four hours after drinking 600 gm. of water is taken as a test. In health an equivalent amount is voided within this period, but in case of liver or kidney disease less than half this proportion is excreted by the end of the fourth hour. At the same time he has found that even under these conditions a much larger proportion is voided when the patients remain in bed. He practices at a watering place (Vittel), where the diuretic action of the waters is the main curative factor, and in his study of 210 such cases he has learned that it is foolish to attempt to give diuretics to promote the elimination of urine when it is retarded solely or mainly by obstructions in the liver. At the same time, diuretics are able to display much greater effectiveness, even in these conditions, if the patient stays in bed. In case of doubt, he makes a practice of the above test, comparing the elimination of urine afterward when the patient is up and about with that on a day when he stays in bed. By ordering the patients to stay in bed while taking the course of waters, he was able to ward off all disturbances from retention of fluid, especially in arteriosclerosis, without fear of vertigo or other accidents. The bed test reveals incipient liver and kidney disease, while it relieves the healthy of any restrictions in regard to drinking the waters. In some cases of gout the bed test revealed hitherto unsuspected incipient impermeability of the kidneys.

Semaine Médicale, Paris

December 29, XXIX, No. 52, pp. 613-624

57 *Phlegmons in the Iliac Region. (Les phlegmons iliaques.) M. Lejars.

57. **Abscess in Left Iliac Region.**—Lejars reports several cases of diffuse gangrenous phlegmons or low perisigmoiditis or phlegmons below the fascia or an adenophlegmon isolated

in the iliac fossa without glandular lesions below. The latter variety follows some local infection of the leg with lymphangitis, but the groin seems to be skipped by the process, the infectious lesions developing in the external iliac chain. In some of the other cases the causal infection evidently proceeded from the sigmoid flexure. In some of these cases the abscess may not develop until months after the primary lesion, which sometimes was too insignificant to be even remembered—eleven months in one of Desprès' cases. Lejars quotes Dupuytren as the first to describe the appendicitic perforation abscess in 1839, followed by Velpeau's description in 1840 of suppuration in the iliac fossa on either side.

Archiv für Gynaekologie, Berlin

LXXXIX, No. 3, pp. 445-624. Last indexed Jan. 22, p. 326

58 Attempts to Immunize Parturients against Puerperal Infection. (Immunisationsversuche der Kreissenden gegen Puerperalinfection.) A. Czyzewicz.
59 Fourth Case on Record of Frontal Craniopagus. O. Warschauer.
60 *Importance of the Proteolytic Leucocyte Ferment in Lochia and Colostrum, and of Antitrypsin in the Serum of Parturients. G. Jochmann.
61 The Blood Pressure between the Menses. (Verhalten des Blutdruckes zwischen der menstruellen und nicht menstruellen Zeit.) T. Tsuji.
62 Frequency of Obstetric Operations. (Häufigkeit der Geburtshülflichen Operationen.) Id.
63 Anatomy and Origin of Placenta Marginata, with Unusual Margin. R. Meyer.
64 Metabolism of Uterus. (Ueber den Stoffwechsel des Uterus in den verschiedenen Zeiten der sexuellen Thätigkeit.) E. Kehrer.
65 Glands Connected with Clitoris and Prepuce. (Ueber Clitoris- und Präputialdrüsen, besonders beim Menschen und bei einigen Thieren.) T. Boyd.
66 Endothelial Ovarian Tumors. W. Carl.
67 Histogenesis and Growth of Uterine Carcinoma. (Histogenese und Wachsthum des Uteruscarcinoms.) K. Pronai.

60. **Proteolytic Leucocyte Ferment in Lochia and Colostrum.**—Jochmann states that the vaginal discharge after childbirth and the colostrum both contain large amounts of the leucocyte ferment which digests albumin, the proteolytic ferment, as shown by the rapid formation of a groove or dimple in a plate of Loeffler serum where it has been inoculated with the fluid in question. His research has confirmed the fact that the leucocytes contain a bactericidal substance which kills the bacteria incorporated by phagocytosis, and also this proteolytic ferment which digests the dead bodies of the bacteria. He suggests that the digestive action of this ferment may have something to do with the spontaneous separation of the placenta and that it is possible that this accumulation of the ferment in the puerperal uterus and resulting digestion of albumin and its absorption may be responsible for the slight febrile states sometimes observed even in aseptic childbirths. It is also possible that the presence of this albumin-digesting ferment in the colostrum may aid digestion in the infant's stomach. The ferment in the colostrum is probably responsible also for the so-called milk fever, observed when the largest amounts of colostrum are being produced and considerable amounts of the ferment are probably being reabsorbed. The production of the ferment on a comparatively large scale is followed by production of an antiferment, and he presents arguments to sustain the assumption that the antiferment thus produced is practically identical with the pancreas antitrypsin, so that the proportion of antitrypsin in the human blood serum is dependent on the leucocyte ferment as well as on conditions in the pancreas. This may explain the large amounts of antitrypsin he has demonstrated in the serum of parturients. The exceptional amounts of the leucocyte ferment accumulated in the lochia and colostrum are responsible for the production of the antitrypsin or antiproteolytic ferment in such abnormally large proportions during the puerperium.

Beiträge zur klinischen Chirurgie, Tübingen

December, LXV, No. 2, pp. 267-576

68 Obstruction of the Intestines with Valve Formation by a Meckel's Diverticulum. (Ein Meckel'sches *Divertikel mit* Darmstenose und Ventilverschluss.) H. *Coenen.*
69 Experimental *Peritoneal* Adhesions Broken up by Massage. (Schicksal der peritonealen Adhäsionen und ihre Beeinflussung durch mechanische Massnahmen im Tierexperiment.) Uyeno.
70 Osteofibroma of the Upper Jaw. (Osteofibrom des Oberkiefers, eine typische Geschwulst.) Id.
71 Surgery of the Esophagus. M. Tiegel.
72 Perforation of Gastric Ulcer. (Ulcus ventriculi perforatum und seine operative Behandlung.) Steinthal.
73 Fate of Bacteria *Entering* Lymph Glands by Inhalation or through Cutaneous *Lesions.* (Verhalten der durch Bakterien-*resorption inficierten Lymphdrüsen.*) W. Noetzel.
74 Experiences with Incarcerated *Hernia.* (Erfahrungen an 100 eingeklemmten Brüchen.) J. van Assen.
75 *Operative Treatment* of Tuberculous Spondylitis. W. Neumann.
76 Congenital Ankylosis of Jaws and Elbow. (Zwei seltene [illegible]
77 Te[illegible] G. Ahreiner.
[illegible] le Sehnen- und
78 *Li[illegible] der Arteria hepatica.) A. Narath.
79 *Exclusion of Colon by Anastomosis between *Ileum and Sigmoid Flexure.* [illegible] Colons durch Vereinigung von Ileum mit [illegible] G. Hirschel.
80 Operative Treatm[illegible] of the *Bladder.* (Chirurgische Behandlung der Blasenektopie.) P. Daneel.

78. ***Ligation of Hepatic Artery.***—Narath reports the details of a case in which he was compelled to ligate the hepatic artery during the removal of a gastric cancer. The ligature was applied to the left branch of the artery and at autopsy a week later the left lobe of the liver was found in extensive necrosis. This is the sixth case on record, he states, in which the hepatic artery has been ligated, and he compares the outcome with experimental research in this line, discussing the anatomy of the liver arteries and the results after ligation of the hepatic artery at different points. His conclusions are that ligation of the common hepatic artery is justified at need if at least one of the collateral routes is uninjured, but that the danger of resulting necrosis should deter the surgeon from ligating the hepatic artery proper or a branch except in case of aneurism. If ligation is necessary on account of operative injury, it should be done as close to the point of injury as possible to avoid shutting off more of the collateral routes than is absolutely necessary. In some cases, however, collateral routes may be so exceptionally well developed that the ligature may be applied without fear of necrosis.

79. **Operative Exclusion of the Colon.**—Hirschel regards this operation as the very last resort, but reports a case in which it gave excellent results, freeing the patient, a woman of 28, from intestinal disturbances of several years' standing, probably due to sagging of the colon and chronic colitis. The fistula in the cecum still persists but causes no annoyance and the patient has gained 20 pounds in the two years since.

Berliner klinische Wochenschrift

December 27, XLVI, No. 52, pp. 2337-2368

81 *Occurrence of Acute Edema of the Lung with Paroxysmal *Increase in Blood* Pressure. (*Vorkommen von akutem* Lungenödem zusammen mit paroxysmaler Blutdrucksteigerung.) K. Petren and G. Bergmark.
82 Destructive Effect on Complement of Shaking. (Komplementschädigung durch Schütteln.) J. Zeissler.
83 *Hermaphrodite Children. (Fall von Hermaphroditismus.) P. Marcuse.

81. **Occurrence of Edema of the Lungs with Paroxysmal Increase in the Blood Pressure.**—Petren has observed two cases of aneurism of the aorta in which cardiac asthma seemed to be preceded by an abrupt rise in blood pressure, and this was followed by acute edema of the lungs. He observed the same thing in a case of interstitial nephritis in a man of 58, the blood pressure of 240 mm. during an attack of asthma dropping to 180 mm. afterward, but no edema of the lungs developed. These cases, he declares, confirm his assumption that the acute rise in blood pressure is the cause of the cardial asthma, the distention of the insufficient left ventricle being of subordinate importance. It seems evident that the primal disturbance is some influence on the nervous system interfering with the normal regulation of the correlated vessel tension, heart action and respiration, with an already diseased heart.

83. **Hermaphroditic Children.**—Marcuse, in reference to a case demonstrated, protests against the German legislation which compels the registration of infants as either boys or girls. This may work a hardship later if the first estimation of the sex proves incorrect, as sexual characteristics develop at puberty. He advised the parents in the case in question to bring up the child as a girl, as the transition later is less disturbing if such becomes necessary. The consent of the authorities can then be obtained for the change to boy's clothing and the child can be sent away from home to a boy's school where he is not known. He urges legislation to permit registration of a neutral sex.

Deutsche medizinische Wochenschrift, Berlin

December 30, XXXV, No. 52, pp. 2305-2336

84 *Treatment [illegible] Injuries of the Ears. (Behandlung der Ohrverletzun[illegible]
85 Tests for E[illegible] he Intestines. (Zur funktione[illegible] [illegible]ngsch. (Zur Bewertung der [illegible] Sind die Gewebskerne im [illegible] trauch.
86 [illegible] (Extramedullärer [illegible] F. Herzog.
87 [illegible] Firearm Wound of Heart. (Zur Lehre der Herzverletzungen.) K. Halbey.
88 Sterilization of Novocain-Suprarenin Solution. H. Braun.
89 Roentgen-Ray Cure in Two Cases of Vascular Nevi. H. E. Schmidt.
90 *Causes for Failure of Silver Nitrat[illegible] Ophthalmia Neonatorum. (Zur Beu[illegible] des Credéschen Verfahrens bei [illegible] W. [illegible]
91 [illegible] [illegible]lk Fever" in Infants. (Zur Frage [illegible] G. Tugendreich.
92 Tschernogubow's Second Modification of the Wassermann Seroreaction. H. Guth.
93 Complements in Milk. (Zur Frage der Milchkomplemente.) M. Pfaundler and C. T. [illegible]
94 Improved India Ink Techr[illegible] Tube Casts. (Darstellung von Urin[illegible] Tuscheverfahrens). K. Stoevesandt.

84. **Injury of the Ear.**—Manasse discusses mainly the accidents to the ear which the general practitioner is liable to encounter. In case of a bloody or serous collection in the auricle, conservative measures may induce reabsorption, but he prefers to aspirate the fluid with a Pravaz syringe and then push a ball of gauze into the hollow left and apply a compressing bandage. If there is already infection the granulations and necrotic cartilage must be scraped out to check the spread of the perichondritis, as otherwise severe disfigurement may result. He reviews the various injuries that may result from accidents, firearm wounds, etc., but insists that treatment is practically the same for all, namely, absolute abstention from local measures, from rinsing, syringing, probing, etc. The head should be kept at rest and the ear bandaged with dry gauze. Nothing else is necessary unless a bullet needs removal or otitis media develops, in which case the ear may be drained with strips of sterile gauze or 20 per cent. borated glycerin may be instilled. If there is a large perforation of the tympanic membrane, boric acid in substance may be used, and cold water compresses are serviceable in case of violent inflammation. As a rule, however, ordinary perforation of the membrane heals without reaction under strict abstention. It is extremely important to refrain from attempts to syringe out clots of blood after a fracture of the bones of the ear or base of the skull, as otherwise infection may easily be carried into the depths, with otogenous meningitis as the result. He has witnessed recovery under measures solely to promote reabsorption, even when the fracture of the base had induced facial paralysis and severe disturbances in hearing and balance. To hasten absorption he generally injects pilocarpin subcutaneously, commencing with 0.01 gm. (1-6 grain) and increasing by 1 mg. a day to 0.02, and then gradually going back to 0.01 gm. with small doses of potassium iodid. Good results can be anticipated, he says, only when such measures are instituted early, before the extravasation has become organized. In case of injury of the ear the wisest are those whose abstention is most complete.

90. **Prophylaxis of Ophthalmia Neonatorum.**—Feilchenfeld warns that inflammation developing after instillation of silver nitrate should not be ascribed to irritation from the drug, but should compel immediate microscopic examination of the secretions so as not to overlook already existing gonococcus infection. A single instillation of the nitrate is unable of course to abort this; it should be suspected the more readily if delivery has been unusually protracted.

Medizinische Klinik, Berlin

December 26, V, No. 52, pp. 1959-1982

95 *Epidemic Poliomyelitis. (Spinale Kinderlähmung.) F. Kramer.
96 Infection of the Blood in Febrile Pulmonary Tuberculosis with Cavities. (Infektion der Blutbahn bei fieberhafter kavernöser Lungenphthise.) F. Reiche.
97 *Disturbances after Appendicectomy and their Treatment under Suction Hyperemia. (Beschwerden nach Appendektomie und deren Behandlung.) M. Jerusalem.
98 Operative Treatment of Recurring Phlyctenular Conjunctivitis. (Zur operat[illegible] r rezidivierenden phlyktaenulösen [illegible] Schultz-Zehden.
[illegible]9 Equivalents in [illegible] Aequivalente.) H. Stadelmann.

95. **Acute Poliomyelitis.**—Kramer remarks in the course of this review of recent epidemics that the prognosis in the last few years has changed considerably as the mortality of the disease is proving higher than previously supposed, and also the number of cases of complete recovery. He advocates during the acute phase merely complete rest and mild measures to induce sweating. As the disease develops in two separate phases it is wisest to keep the patients still in bed for a week or two after defervescence. During the phase of paralysis, massage and electric procedures provide the most favorable conditions for recuperation. In the Breslau clinic, where he is assistant, the age in 196 cases ranged from early infancy to 30, each decade being represented, but only 24 of the patients were over 5. The summer months showed the largest number of cases.

97. **Treatment of Disturbances After Appendicectomy.**—Jerusalem has found extremely effectual the application of a large suction bell, as for Bier's hyperemia, covering the entire iliac fossa region. The nervous and vasomotor disturbances have always yielded at once when this suction was applied for from 10 to 30 minutes. As soon as the skin reddened under the influence of the suction, subjective benefit was soon apparent and the local conditions were evidently much improved. He gives an illustrated report of a few cases, urging that the method should be given a trial instead of the usual treatment commonly accorded these postoperative complaints.

Münchener medizinische Wochenschrift

December 28, LVI, No. 52, pp. 2701-2716

100 *Causes of Uterine Hemorrhage. (Ursachen der Uterusblutungen.) O. Pankow.
101 Hypothesis for Explanation of Exanthem in Measles. (Zur Erklärung des Masernexanthems.) P. Sittler.
102 Family Tendency to Strabismus. (Weiterer Beitrag zur Vererbung des Schielens.) O. v. Sicherer.

100. **Causes of Uterine Hemorrhage.**—Pankow states that the anatomic changes found in the uterus in so-called chronic metritis and endometritis do not always indicate preceding inflammation. The condition is rather an idiopathic metropathy. Unless inflammation can be demonstrated it is better to drop the term metritis. His findings justify the conclusion that the source of uterine hemorrhage must be sought outside the uterus in many cases. Histologic examination of the ovaries removed in eight cases of uterine hemorrhage showed no difference between them and the ovaries of women free from hemorrhage, of a similar age. This confirmed his assumption that the cause of the hemorrhage is not anatomic changes but a disturbance in the secretory activity of the ovaries, and there is much to sustain the assumption that the true source of the trouble is some disturbance in the physiologic balance of the various glands with internal secretion raising or lowering the blood pressure. Loss of the physiologic balance between the functioning of these various glands would readily explain the tendency to uterine hemorrhage, especially during periods in which the physiologic balance throughout is most unstable, as at puberty and the menopause. This readily explains why hemorrhage may occur in one and not in the other case, with similar anatomic findings in the uterus in both; also why chlorotic girls at puberty may present severe hemorrhage or amenorrhea or normal menses—all these varying manifestations being merely different symptoms of the same underlying affection, a disturbance in the balance between the glands with an internal secretion.

Wiener klinische Wochenschrift, Vienna

December 30, XXII, No. 52, pp 1813-1844

103 *Cure of Trachomatous Pannus in Six Cases by Inoculation of Gonorrheal Secretion. (Heilung des Pannus trachomatosus durch Einimpfung gonorrhoischen Sekretes.) W. Goldzieher.
104 Suture of Wounds in the Heart. (Erfahrungen und Ansichten über die Naht der Herzwunden.) K. Ewald.
105 Toxic Action of Hematoporphyrin on Warm Blooded Animals Exposed to the Light. (Giftige Wirkung des Hämatoporphyrins auf Warmblütler bei Belichtung.) W. Hausmann.
106 Lack of Pancreatic Ferment in the Stools in Two Cases. (Zwei verschiedenartige Fälle von fehlendem Pankreasferment in den Fäzes.) K. A. Heiberg.

103. **Treatment of Trachomatous Pannus by Inoculation of Gonorrheal Secretions.**—Goldzieher has revived this old method of treatment and has applied it in 6 cases during the last 5

years out of his extensive material at Budapest. The results were good in all cases, the cornea clearing up as the acute gonorrheal process followed the inoculation in 3 days. The improvement has persisted to date in 3 cases described at length, and probably has in the 3 others, although the patients have been lost sight of. The gonorrheal secretion was taken from a new-born infant with ophthalmia neonatorum as less virulent than in the secretions of adults. In future he intends to try attenuated cultures of gonococci for the purpose. He describes his method of transferring the secretion on a glass rod from the infant's eye to that of the patient. The purulent secretion is first wiped away with moist gauze so that only the tear fluid is used. All the patients were already blind from the pannus, and he applied this method only as the last resort after failure of persevering application of all other measures. He is convinced that it is a certain cure, and he emphasizes the fact that the cornea with pannus does not respond to the gonococcus infection in the same way as a normal cornea. The network of vessels brings quantities of protecting substances to the spot so that the process runs a stormy but brief course and heals completely without leaving cicatricial changes. The fact that the granulations *vanish without leaving a scar shows that there are means* by which the trachomatous granulations can be made to retrogress without leaving the usual scar tissue. This fact suggests the necessity for therapeutic research in this line. To the objection whether it is wise to inoculate a person *intentionally* with *gonorrhea*, he asks which the reader would prefer himself, to be totally blind or, with comparatively normal vision to suffer from an eventual gonorrheal arthritis?

Gazzetta degli Ospedali e delle Cliniche, Milan

December 23, XXX, No. 153, pp. 1617-1624

107 *Connection between Mental and Gastric Derangement. (Psicopatie e gastropatie.) S. Vittorangeli.

December 26, No. 154, pp. 1625-1640

108 Eosinophilia Not Constant in Cachectic Aphthæ. (Contributo allo studio della produzione sottolinguale con speciale riguardo all' eosinofilia.) S. De Villa.

December 28, No. 155, pp. 1641-1648

109 Etiology of Sclerema and Anasarca in New-Born Infants. (Etiologia dello sclerema ed anasarca dei neonati.) G. Pisano.

107. Gastric Functions in the Insane.—Vittorangeli reports two cases of hyperchlorhydria developing *in the course of* melancholia or a manic depressive psychosis. He thinks it probable that the peculiar hyperexcitability of the secretory apparatus of the stomach was the result of cortical influences. In one case the hyperchlorhydria progressed to continuous gastrosuccorrhea.

Policlinico, Rome

December, XVI, Medical Section, No. 12, pp. 525-568

110 *Improved Therapeutic Hemostasis. (L'azione di alcuni emostatici sulla coagulazione del sangue.) P. Ciuffini.

111 Wassermann Reaction in Leprosy. (La sierodiagnosi di Wassermann nella lepra.) A. Serra.

112 The Conjunctival Tuberculin Test for Diagnosis and Prognosis. (La fisiopatologia della reazione congiuntivale alle tubercolina.) N. Pende.

110. Research on Therapeutic Hemostasis.—Ciuffini has been testing on an extensive scale gelatin, calcium chlorid and ferric chlorid as means to hasten *coagulation* of the blood, in research at Baccelli's medical clinic at Rome. He found that gelatin promotes coagulation but loses this property if heated to 130 or 135 C. (266 or 275 F.) for half an hour. Sterilization of the gelatin thus renders it inefficient in this respect. By the mouth or rectum, after heating to 100 C. (212 F.), no effect on the coagulation was perceptible. Calcium chlorid had only a slight effect in this line. Ferric chlorid by the mouth has nearly as marked an effect as gelatin subcutaneously, but other iron preparations were inefficient. A combination of gelatin and ferric chlorid proved exceptionally effectual, the result inferior only to that induced by non-sterilized gelatin injected subcutaneously. Coagulation is notably hastened and increased and this effect persists for more than twenty-four hours, while with the gelatin alone the effect is much less lasting. He uses *a concentrated* solution of acacia, mixing it with ferric chlorid, both previously sterilized separately, and injected subcutaneously. There was no local disturbance or reaction of any kind. The compound resulting from their combination being apparently harmless, he prophesies a future for this mixture in operative and other hemostasis.

Norsk Magazin for Lægevidenskaben, Christiania

January, LXXI, No. 1, pp. 1-208

113 *Case of Fatal Paratyphoid Jaundice. (Et tilfaelde af infektiøs ikterus.) O. Scheel.

114 Development of Surgery in Norway. (Fra gamle dage.) I. Reichborn-Kjennerud.

115 *Bone Formation in Penis and its Successful Removal. (Et tilfælde af bendannelse i penis.) H. L. C. Huitfeldt.

116 Two Cases of Volvulus of Entire Small Intestine. (Volvulus af hele tyndtarmen og dens mesenterium.) H. Wille.

117 *Wassermann Reaction in the Cadaver. (Ligsera og den Wassermann'ske syfilisreaktion.) R. Krefting.

113. Case of Fatal Paratyphoid Jaundice.—Scheel's patient was a man of 46, who died after 3 weeks of an infectious jaundice; a paratyphoid bacillus could be cultivated from the blood during life and from the liver, spleen, etc., postmortem. He thinks it probable that many cases of so-called catarrhal icterus are in reality a general infection with *secondary localization in the biliary apparatus.* Histologic examination of the liver capillaries in his case showed minute foci of necrosis, and these were probably responsible for the stagnation of bile and consequent resorption.

115. Patch of Ossification in the Penis.—Huitfeldt reports *a case in which a hard lump in the penis* near the root was removed. It proved to be a fibrous and bony formation, the lump measuring 4 by 18 by 26 mm. It was in the outer envelop of the corpora cavernosa and shelled out easily under local anesthesia. It had been noticed first about six months *before. Complete cure from all disturbances followed* and has persisted during the two years and more to date. Huitfeldt has found only 6 cases on record of this formation of a patch of bone tissue in the penis, removed by an operation, although over 50 cases have been reported of fibrous induration for which no traumatic or other cause could be discovered. Attempts to induce resolution of such indurations have not proved very encouraging, and operative treatment has not always proved successful. The operative injury to the corpora cavernosa has frequently caused severe functional disturbance, and recurrence of the induration has been observed in some cases.

117. Seroreaction in the Cadaver.—Krefting obtained conflicting findings in 100 cadavers examined, as also Bruck, in a large number, demonstrating anew that the specific *seroreaction in syphilis is a strictly biologic phenomenon.*

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

OPHTHALMIC SURGERY. A Treatise on Surgical Operations Pertaining to the Eye and its Appendages, with Chapters on Para-Operative Technic and Management of Instruments. By Charles H. Beard, M.D., Surgeon to the Illinois *Charitable Eye* and Ear Infirmary. Cloth. Pp. 674, with 9 plates and 300 other illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1910.

DIGEST OF COMMENTS O[illegible] OF THE UNITED STATES OF AMERICA (EIG[illegible]), AND THE NATIONAL FORMULARY (TH[illegible]ling Dec. 31, 1906. By Murray Galt Mot[illegible] Paper. Pp. 523. Hygienic Laboratory [illegible]on: Government Printing Office, 1909.

NATURAL SALVATION (SALVATION BY SCIENCE): Immortal Life on the Earth from the Growth of [illegible] the Development of the Human Brain. By Charles [illegible]D. Cloth. Pp. 157, with illustrations. Sixth [illegible] Norway Lake, Me.: The Laboratory. 1910.

MILK AND ITS RELATION TO THE PUBLIC HEALTH. By Various Authors. Hygienic Laboratory Bulletin No. 56. (Revised and enlarged edition of Bulletin No. 41.) Paper. Pp. 829, with 66 illustrations. Washington: *Government Printing Office,* 1909.

QUACKS, FALSE REMEDIES AND THE PUBLIC HEALTH. By David Walsh, M.D., Senior Physician, Western Skin Hospital, London, W. Cloth. Pp. 60. Price, 1 shilling 6 pence net. London: Baillière, Tindall and Cox, 1909.

PROCEEDINGS OF THE NORTH DAKOTA PHARMACEUTICAL ASSOCIATION. Twenty-fourth Annual Meeting, held at Grand Forks Aug. 3-5, 1909. Paper. Pp. 181. Price, 50 cents. W. S. Parker, Secretary, Lisbon, N. Dak.